

UNIFIED FACILITIES CRITERIA (UFC)

AIR FORCE VISITING QUARTERS FACILITIES DESIGN GUIDE



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UNIFIED FACILITIES CRITERIA (UFC)

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY (Preparing Activity)

Record of Changes (changes are indicated by \1\ ... /1/)

Change No.	Date	Location

This UFC supersedes the Air Force Visiting Quarters Design Guide, dated 16 Aug 2000.

FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with USD(AT&L) Memorandum dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and, in some instances, Bilateral Infrastructure Agreements (BIA). Therefore, the acquisition team must ensure compliance with the more stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

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- USACE TECHINFO Internet site <http://www.hnd.usace.army.mil/techinfo/index.htm>.
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- Construction Criteria Base (CCB) system maintained by the National Institute of Building Sciences at Internet site <http://www.nibs.org/ccb>.

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CHAPTER 1 INTRODUCTION

The guidance provided in this publication implements construction policies and processes approved for Visiting Quarters. The standards contained herein represent the Air Force goal to achieve a consistent and enhanced level of quality and service throughout the Air Force. Your success in developing and implementing plans to achieve lodging excellence will help sustain a strong and viable Air Force. Simply put, quality fosters productivity and affects the career decisions of Air Force men and women. While our force and base structure will be smaller in the future, and fiscal constraints may limit resources, we are committed to the concept of private, comfortable lodging and all it contributes to improved quality of life.

Figure 1-1 Visiting Quarters Design—Osan Air Base



1-1 PURPOSE. This guide provides standards and considerations for planning, programming, and designing new Visiting Quarters, major renovations of existing lodging facilities, and permanent conversion of existing facilities as new lodging on Air Force installations. Developed for the use of Commanders, Air Force Services, Base Civil Engineering, and design architects, engineers, programmers and planners, the goal is to achieve a consistent and enhanced level of quality and service throughout the Air Force. Focusing on the commercial hotel industry as a benchmark, these standards incorporate best attributes of limited service hotels. Designers are encouraged and challenged to stretch the limits of typical government design. Innovative and quality lodging design guidance is exemplified with the construction of the first Air Force Visiting Quarters Design at Osan Air Base, Figure 1-1. This guide covers basic facility requirements and design considerations necessary for successful project development and shall be used in conjunction with Air Force standards and governing codes.

1-2 MEASURING QUALITY. Air Force lodging design will reflect quality through appearance, fulfillment of functional requirements, and accomplishment of mission objectives. Quality is derived from a professional commitment by users, planners, programmers, and designers to achieve understated excellence through the delivery of complete and usable facilities. This philosophy ensures that Air Force Lodging will be architecturally compatible, universally accessible, functionally and operationally efficient, economically maintainable, and environmentally safe.

1-2.1 Design Standards. Visiting Quarters design will reflect standardization, from the design of guest room and suites plans to the selection of finishes and materials, providing the guest a consistent level of high quality interior and exterior living space.

1-2.2 Functionality. Each aspect of the lodging environment must perform efficiently. All materials, task and uses must interrelate to provide an effectively designed space.

1-2.3 Best Value. Well-specified building systems and finishes enhance productivity, and conserve cost, energy, and time during and after construction. Design criteria and building materials and methods, within budget limitations, will reflect the best value for the Air Force. Life cycle costs, as well as the visual architecture of the Visiting Quarters campus, will be emphasized.

1-2.4 Durability and Maintainability. Material and finish selections must emphasize durability, extended life, and visual appearance based on the facility use and increased level of wear. Consider ease and cost of maintenance requirements while ensuring the best value for the Air Force.

1-2.5 Architectural Compatibility. The elements of pure design are the foundation of good design. These elements include expression of structure, establishment of unity and harmony while avoiding monotony, development of contrast and variety through considerations of mass and scale, and material selection. Air Force lodging will reflect classic architecture, functional design, and quality. Master planning and project design will consider the possibility of future renovations or additions to minimize extensive changes.

1-2.6 Sustainability. Air Force lodging must incorporate sustainable development principles and reflect regional environmental and/or architectural uniqueness. The goals of sustainability are to conserve energy, water, and raw materials; prevent environmental degradation caused by construction, operations, and disposal of facilities; and create built environments, which are livable, healthy, and productive. By carefully analyzing these factors, a lodging facility can achieve a cohesive sense of scale, tradition, and compatibility while sustaining the mission and the environment.

1-2.7 Quality of Life. Emotionally Satisfying Air Force lodging design must satisfy the needs of the guest while human providing a sense of security and place. The excellence of the residential living hotel environment becomes a combined effort of the project team, enhancing quality of life while providing classic and durable designs for the Air Force is within the control of those who design and build it; therefore, the combined efforts of the Services commander/director and civil engineering programmer are required to provide a Visiting Quarters that not only stimulates job satisfaction, but also enhances a guest's pleasure and relaxation.

1-3 DESIGN GUIDE SCOPE AND USE. This design guide is applicable to all projects in the continental United States and overseas, and applies to new Visiting Quarters construction and major lodging renovation projects. Basic criteria are divided into chapters, organized to facilitate the design process, including programming and design requirements.

Programming requirements include criteria relevant to programming and planning a new Visiting Quarters facility or renovating existing lodging facilities on Air Force installations. Project definition, project scope, project siting requirements, project execution guidance, and specific funding considerations are discussed.

Design requirements include criteria relevant to all phases of design, and contain guidelines for planning and designing the site, building footprint, infrastructure, and building systems. Detailed design requirements for each functional space are included, as well as illustrative design information, indicating how design principals can be applied to a particular project.

1-3.1 Limitations. This document provides detailed criteria to be used to produce programming requirements or conceptual design for lodging projects. Use this guide in conjunction with other Air Force and Department of Defense documents that give related guidance. Unique design requirements of a specific project will be addressed individually at the local level. This design guide is not a substitute for research required by programmers and designers, and it recognizes that the Major Commands may and frequently do have special requirements for their lodging facilities. Adherence to base and Major Command facility design standards is critical. Required spaces and space requirements are mandatory as provided. All other programming and design requirements included in this guide are minimum standards and/or recommendations and are subject to local requirements and interpretation.

This guide applies to both new construction and major renovation projects. All work to existing facilities that is beyond cosmetic treatment (replacing carpeting, painting, wallpaper installation, etc.) is considered major renovation. The term “renovation” is not a programming class of work, but describes the nature of the project being done.

1-4 GOALS. This design guide sets overall Air Force policy, but includes flexibility to meet local needs to the greatest extent. This guide serves to provide a better understanding of the many issues involved in quality lodging for guests, regardless of rank or temporary duty. It also promotes cradle-to-grave teamwork in the project development and execution process from requirements identification through beneficial occupancy. Air Force Visiting Quarters projects will exhibit leadership in sustainable and environmentally responsible design and construction, accessibility, and force protection. These projects will comply with as defined in *USAF Sustainable Facilities Guide*, the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines*, and *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*.

CHAPTER 2 PROGRAMMING

2-1 OVERALL CONSIDERATIONS. This chapter provides basic guidelines for planning and programming new Visiting Quarters and renovating existing lodging on Air Force installations. The size and number of guest rooms, suites, guest support areas, and service areas at each site will vary depending on the mission, but standard plans and requirements will remain static. Renovations will follow this guidance as closely as possible, understanding that variances will be made on a case-by-case basis. The Wing or Major Command has programming and design latitude and decision making authority in the following areas: site selection, orientation of the Visiting Quarters building on the site, and exterior architectural treatment.

2-1.1 Project Team. Coordination between all organizations is essential to the success of each project. Development of a project team ensures that this coordination is realized. This team will establish design criteria, specific goals and strategies, such as sustainable development principles, during programming, planning, design and construction, to ensure that all functional requirements are met and resolved.

- Commanders
- Services/Combat Support Flight Commanders/Lodging Managers
- Planners, Architects, Landscape Architects, Engineers, Interior Designers
- Fire Department, Security Forces and Safety personnel
- Environmental and Bioenvironmental Engineering Personnel
- Major Command and Headquarters (Services and Civil Engineering)

A design “charrette” session with participation from the project team serves as a kick off to the design phase and will unify the separate elements. Goals include the exchange of ideas, attitudes, and experiences, clarifying functional requirements, providing evaluation and feedback, and establishing user involvement and responsibilities. The use of a charrette will lead to the success of the schematic design with “buy-in” from all team members.

2-1.2 Project Definition

2-1.2.1 Project Initiation. A DD Form 1391, Military Construction Project Data, is required for each Visiting Quarters project prior to a Needs Assessment Study, performed through Headquarters Air Force Services Agency. Reference *AFI 34-246, Air Force Lodging Program* for specific criteria. Copies of all programming documents will be provided to Headquarters Air Force Services Agency.

2-1.2.1 Project Definition. The Requirements Document/Project Management Plan provides the design agent and the designer with information used in negotiating the design contract and completing the project definition phase. The information in this guide provides the basis for developing both. Reference the *USAF Project Managers' Guide for Design and Construction* for useful information on the Project Definition phase.

Project definition designs must conform to the overall project design considerations in this guide, including site evaluation and design, overall building size and design, functional area requirements and space allowances, and building systems design. Unique local requirements concerning building program, design criteria, and code compliance will also be identified at this stage. Overseas projects must consider requirements of host nations to ensure requirements for certification of compliance are met. Commands must provide copies of all concept designs for Visiting Quarters projects to Headquarters Air Force Services Agency to include site plans, building floor plans, exterior elevations and typical guest room and suite plans including furniture layouts. Concept designs will also include the critical dimensions and calculations that reflect compliance with design criteria.

Unique local requirements concerning building, program, sustainable development, and design criteria will be included in the Requirements Document/Project Management Plan. Visiting Quarters projects in overseas locations need to comply with applicable Host Nation agreements, local building codes, equipment usage, communication systems, and other pertinent policies, and shall be coordinated with the local Base Civil Engineer.

2-1.3 Codes and Standards

2-1.3.1 Force Protection. Follow *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings* and *UFC 4-010-10, DoD Minimum Standoff Distances for Buildings (FOUO)* for guidance on all lodging construction. Refer also to *AFI 10-245, Air Force Antiterrorism Standards* and the *USAF Force Protection Design Guide* for additional guidance. Coordinate force protection counter-measure standards throughout the design process to ensure aesthetic consideration and compatibility. Landscape and landforms may be used to soften the impact of visual and physical barriers, as well providing buffer and setbacks. Architectural design can integrate required building and site components into the building and campus design as to enhance the success of the overall project.

2-1.3.2 Sustainability. Sustainability is defined as the responsible stewardship of our natural, human and financial resources through a practical and balanced approach. Sustainability requires changes to the facility delivery process to ensure the “best fit” of the built environment to the natural and cultural environment. Sustainability integrates “green” or environmentally responsible practices into the process from the very beginning. Sustainable practices are an investment in the future. Through conservation, improved maintainability, recycling, reduction, reuse and other actions and innovations, we can meet today’s needs without compromising the ability of future generations to meet their own. Incorporating sustainable design concepts requires the following actions:

- Expanding our focus to include life cycle costs along with first costs
- Extending the life of facilities
- Changing the facility delivery process to minimize waste
- Removing individual discipline focus and working as a team

This subject is addressed in detail in the *USAF Sustainable Facilities Guide*. Additionally, the Air Force has developed a Leadership in Energy and Environmental Design Application Guide for Lodging, referenced in the USAF Sustainable Facilities Guide, which gives specific guidance for lodging facilities. Use of this guide is required on all lodging facility projects.

2-1.3.3 Accessibility. Air Force lodging will be designed to be accessible to and usable by persons with disabilities. New construction, as well as renovations to existing facilities, must be designed and constructed to meet standards, including 5% of all guest rooms and access to and use of all guest support areas and service areas. The specific requirements for providing access and accommodating the special needs of persons with disabilities are published in the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines*. In case of conflicting guidance, the stricter guidance will be followed.

2-1.4 Project Siting. Determining the appropriate site location for a new Visiting Quarters campus is the responsibility of the installation. The footprint of a new Visiting Quarters is significantly greater than traditional “dormitory style” facility configuration, thus serious consideration of an appropriate and adequate site is critical. Guidance on siting requirements for new Visiting Quarters construction includes guest room demand requirements, square footage requirements, building height allowance, force protection setback requirements, and available sites on an installation. The table below provides a typical range for varying lodging requirements to assist in the proper and adequate siting of a new facility.

Table 2-1 Visiting Quarters Siting Requirements

Visiting Quarters Siting Requirements				
Guest Rooms	Floors	Area/Floor	ATFP/Parking	Acreage Required
100 rooms	3 story	1633sm (17575sf)	10150sm (109214sf)	2.9 acres (11783sm)
200 rooms	4 story	2450sm (26362sf)	14750sm (158710sf)	4.3 acres (17200sm)
300 rooms	5 story	2940sm (31634sf)	18450sm (198522sf)	5.3 acres (21390sm)
Acreage includes standard 25m standoff distance from roads and parking Acreage includes parking considerations for guest and nominal staff parking				

Figure 2-1 Osan Air Base Visiting Quarters Area Development Plan



Figure 2-2 Travis Air Force Base Visiting Quarters Area Development Plan



The selected site must be a “clean” site and may require companion Real Property Maintenance Construction projects using appropriated funds to accomplish this prior to the start of the Visiting Quarters project. A clean site is defined as an environmentally clean site with all structures and fencing removed, and all infrastructure relocated. Coordination with the Base General Plan to evaluate potential sites is critical, and a fair evaluation will be based on multiple factors including adjacencies and relationships, required site attributes and development potential, building footprints, roads and drives, parking, landscape, and fire department access. Future demands placed on the capacity of supporting infrastructure and utilities in support of the project are critical and may also impact costs. Additional determination issues will include availability and location of utilities and close proximity to community facilities. Reference *AFI 32-7062 Air Force Comprehensive Planning* for additional guidance.

Locate lodging within a reasonable distance of all community facilities and services, such as dining facilities, postal service centers, base exchanges, commissaries, pedestrian circulation systems, bike paths, and mass transit routes. Programmers must address the capacity of existing community facilities and existing infrastructure, and accommodate any additional requirements incurred by the proposed lodging increase. The proximity to community services must be balanced with the need for quiet and privacy. To achieve the optimum site plan, each design discipline must work in concert with one another. All design disciplines involved in the site planning process must coordinate their design concepts to ensure the project presents a professional image of the Air Force, and encourages pride of ownership. Site planning is also influenced by base leadership through the Facilities Board.

There are many factors that may influence lodging facility siting decisions:

- Compliance with the Base General Plan
 - Proximity to existing lodging facilities
 - Development potential, future expansion, and adjoining land uses
 - Force protection, accessibility, and environmental considerations
 - Proximity to recreational centers and community facilities
 - Existing topography and landscape
 - Available base infrastructure
 - Vehicle circulation system, including public transportation access
 - Existing walkways, designated bike and jogging paths
 - Facilities requiring demolition
 - Off-base communities and adjoining neighborhoods
- Other factors as might be determined by the design program, such as density, the development of a campus atmosphere, obtaining Leadership in Energy and Environmental Design certification, etc.

Expansion potential for lodging facilities usually involves the addition of more guest rooms. It is generally impractical to build an addition onto an existing lodging facility. If the potential for adding additional guest rooms to a lodging facility project is identified during the initial programming stage, allow space in the site development plan for additional structures and size the site utilities accordingly.

2-1.5 **Project Execution**

2-1.5.1 Design Process. Successful lodging facilities require involvement of the entire facility delivery team early in the process to fully develop facility requirements to identify the appropriate cost, develop programming documents, and deliver the project on-time and within budget. Designs for traditional design-bid-build projects and design-build projects using the pre-established project requirements are typically developed in the following sequence: project definition (15% design), preliminary/conceptual (30% design), intermediate (45 – 60% design), pre-final (95% design), and final construction documents (100% design). Designs must conform to the requirements, scope, and costs provided in the Needs Assessment Study and Requirements Document, plus the criteria defined in this guide, and in any supplemental base or Major Command standards. Design-bid-build is the preferred method of execution. Further guidance on the design process may be found in the *USAF Project Manager's Guide to Design and Construction*.

2-1.5.2 Mock-Up Guest Room. A full mock-up guest room is recommended for all new Visiting Quarters design construction and mandatory for all nonappropriated fund projects to ensure that requirements and quality standards are met. This mock-up will include all finishes and materials included in the Structural Interior Design package, and will be the responsibility of the construction contractor. In tangent, the government will provide appropriate furnishings for the mock-up.

A two-step process is recommended for the execution of the mock-up guest room, with an initial Notice To Proceed issued specifically to construct the mock-up as part of the submittal process. After approval of this mock-up, a second Notice To Proceed will be issued for facility construction start. Specific locations for mock up will be base specific.

2-2 **PROJECT SCOPE**

2-2.1 General Considerations. A key factor in the success of a hotel operations is planning prior to design development to understand fully guest needs and identification of services required to satisfy these needs. The initial scope of a Visiting Quarters project will be programmed using the standards and criteria contained in *AFH 32-1084 Facility Requirements*. The number of guest rooms and mix will be provided by Headquarters Air Force Services Agency/SVOHL based on the standard room plans included with this guide. Allowances for guest support areas, back-of-house service areas, as well as site requirements will be considered. Planning shall incorporate accessibility requirements in all common guest support areas and 5% of all guest rooms.

The actual determination of the project scope will be based on the results of the Needs Assessment Study performed through Headquarters Air Force Services Agency after the DD Form 1391 has been completed. This Needs Assessment Study validates the site selection, determines the overall number of rooms including mix, and identifies any companion appropriated funds projects necessary to provide a complete and usable facility. The facility space program will consider 1) official, current and projected guest utilization served by the proposed facility, 2) potential for retention and renovation of existing facilities, 3) need for additions/alterations versus completely new construction projects, and 4) existing on-base community facilities and their adequacies relative to current and future needs. Additional requirements such as surge conditions, significant transient crew requirements, and historic number of long-term temporary duty commitments will be considered. A good faith effort will be made to uncover any potential site and utility issues.

Visiting Quarters military construction projects will comply with the design and construction guidance that establish the absolute size for the net living area. Commands desiring a waiver from these absolute planning factors must submit a fully justified request, formatted as a normal congressional reprogramming action, and an economic analysis to Headquarters Air Force Services Agency. Headquarters Air Force Services Agency will in turn forward the request to Headquarters Air Force Services.

Table 2-2 Construction Standards—New Construction and Renovation

Net Living Area per Guest Room	26m ² (280sf) net living area
Net Living Area per Accessible Guest Room	30m ² (320sf) net living area
Net Living Area per Suite	52m ² (560sf) net living area
Net Living Area per Accessible Suite	52m ² (560sf) net living area
Gross Building Area per Guest	49m ² (525sf) per guest

2-2.2 Floor Plans. Conceptual floor plans have been developed for use in the design of new Visiting Quarters guest room plans, accessible guest room plans, suite plans, and accessible suite plans. These floor plans are discussed in detail later in this guide as well as conceptual layouts and recommendations for service areas and guest support areas. An appropriate mix of these plans must be used for all new Visiting Quarters construction.

2-2.3 Area Requirements

Figure 2-3 Guest Room Net Living Area

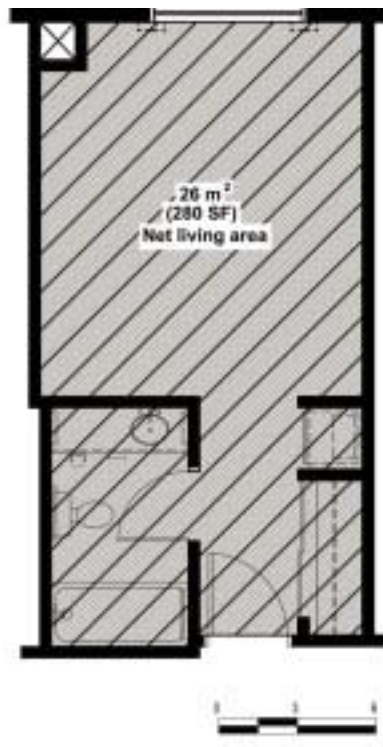
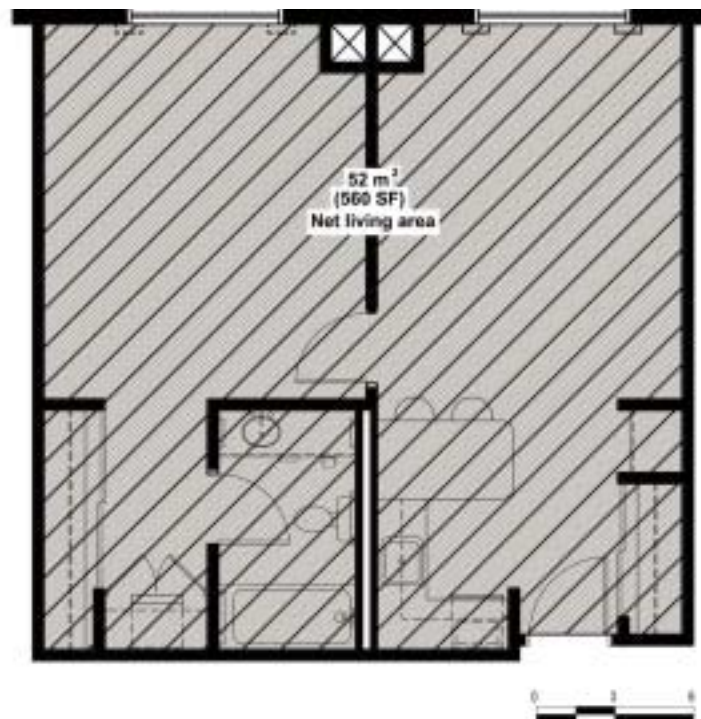


Figure 2-4 Suite Net Living Area



All guest rooms will be single occupancy (E1-O10) with private baths. Acceptable configurations include guest rooms with sleeping/living areas and private bath, and suites consisting of bedroom, bath, and combination living/dining area. The aggregate total of programmed suite configured Visiting Quarters accommodations and existing inventory of distinguished visitor suites (officer, enlisted combined) will not exceed 5% of total inventory. Standard guest rooms will have a Net Living Area of 26m² (280sf). Suites will have a Net Living Area of 43m² (560sf) and will be interchangeable housing enlisted, officer and civilian. If the existing suite inventory exceeds this 5% ceiling, new construction and major renovation will not include Visiting Quarters suites. A waiver of this policy and any other exception such as surge requirements or security will require approval by Headquarters Air Force Services. Building size and scope compliance will be based on net square footage to allow for varying factors resulting from different construction methods and materials that may be required, especially overseas.

2-2.3.1 Net Living Area. Net Living Area is generally defined as the floor area of the living area, bedroom, bath, and hospitality area measured to the inside face of the room walls as indicated by the shaded areas on the following guest room plans.

Items included in Net Living Area calculations are:

- All door swings that encroach upon the living/bedroom/bath areas
- Mechanical equipment that occurs within the living/bedroom/bath areas (HVAC units, radiators, and baseboard heaters)

Items excluded from Net Living Area calculations are:

- Items extending from floor to ceiling, which have been boxed-in and extend into the room from the wall plane (columns, pilasters, vertical pipes, mechanical chases, air ducts, etc.)

The width of a living/bedroom area will not be less than 3m (10'-0"). The recommended minimum width is 3.3m (11'-0"). Ceiling heights throughout lodging facilities will not be less than 2.8m (9'-0").

2-2.3.2 Gross Building Area. Gross Building Area is measured to the outside face of the exterior enclosure walls. Do not include normal roof overhangs in gross building area. Normal roof overhangs are generally less than three feet wide and are unsupported by columns. Exterior covered areas such as balconies count as half scope and are measured from the face of the enclosure wall to the edge of the covered area. Exterior unenclosed stairs count as half scope per floor that they serve, but interior stairs and elevator shafts count as full scope per floor that they serve. Refer to *AFH32-1084 Facility Requirements* for more information on scope calculation.

The Gross Building Area for Visiting Quarters will not exceed 49m² (525sf) per guest. This limitation may be increased by 2m² (21.5sf) per person for high-rise lodging facilities (4 stories or more) or for lodging facilities with site-specific programming requirements. Newly constructed projects must comply with the design and construction guidance establishing the required size for the Net Living Area and Gross Building Area. Cost-effective lodging facility renovation projects must also comply with the required size for the Net Living Area, but may exceed the Gross Building Area requirements due to pre-existing conditions. Installations desiring a waiver from these planning factors must submit a fully justified request to their Major Command and Civil Engineer, who has final waiver authority.

New Visiting Quarters and major lodging renovation projects will meet the construction standards defined in Table 2-2. Additionally, newly constructed Visiting Quarterss will include the required spaces with their associated prescribed sizes as listed in the Table 2-3. Some flexibility is allowed for renovated facilities, but they must include the required spaces to the greatest practical degree. Spaces can be adjusted if one area needs to be slightly larger than another. There are no maximum allowable areas for installation specific spaces as defined in Table 2-4. It is difficult to accommodate all installation specific spaces—prioritization will be based on individual project needs and specified requirements.

Table 2-3 Required Spaces and Sizes—New Construction and Renovation

Required Functional Space	Net Living Area
Core Areas	
Guest Room	26m ² (280sf)
Sleeping/Living Area—bed, desk, dresser, chair	20.4m ² (220sf)
Guest Bath—toilet, vanity, tub	4.2m ² (45sf)
Guest Closet	1.4m ² (15sf)
Accessible Guest Room	30m ² (320sf)
Sleeping/Living Area—bed, desk, dresser, chair	23.3m ² (250sf)
Guest Bath—toilet, vanity, tub	5.1m ² (55sf)
Guest Closet	1.4m ² (15sf)
Suite	52m ² (560sf)
Sleeping Area	20.4m ² (220sf)
Living Area—sofa/loveseat, hospitality, washer/dryer	23.7m ² (255sf)
Guest Bath—toilet, vanity, tub	4.2m ² (45sf)
Guest Closet	1.4m ² (15sf)
Laundry Area—per appliance set	2.3m ² (25sf)
Accessible Suite	52m ² (560sf)
Sleeping Area	20.4m ² (220sf)
Living Area—sofa/loveseat, hospitality, washer/dryer	23.7m ² (255sf)
Guest Bath—toilet, vanity, tub	5.1m ² (55sf)
Guest Closet	1.4m ² (15sf)
Laundry Area—per appliance set	2.3m ² (25sf)

Guest Support	
Building Entrance	installation specific
Conference/Training Room—25 person min	1.2m ² (15sf) per person
Business Center	1.9m ² (20sf) per person
Coffee/Kiosk Area	installation specific
Laundry Area—1 washer/dryer per 8 persons/per set	3.3m ² (365sf)
Vending Area—per floor	9.3m ² (100sf)
Public Toilets	per applicable codes
Secured Luggage Storage	installation specific
Circulation/Corridors	as required
Stairs/Elevators	as required

Services (Back of House)	
Supply Storage—varies	9.3m ² (100sf) minimum
Employee Lounge	16.3m ² (175sf)
Employee Toilets	per applicable codes
Linen Storage—varies/per floor	installation specific
Housekeeping Area—varies/per floor	installation specific
Housekeeping Office	installation specific
Utility Rooms	installation specific
Storage Areas	installation specific
Janitor Areas	installation specific
Maintenance Shop	9.3m ² (100sf)
Receiving Area	installation specific

Table 2-4 Installation Specific Spaces and Sizes—New Construction and Renovation

Installation Specific Space	Net Area
Guest Support	
Administration area	11.6m ² (125sf) per office
Communication Room—per floor	installation specific
Lobby—75 person	1.1 – 1.2m ² (12 – 15sf) per person
Reception/ATM area	installation specific
Retail Sales	installation specific
Lounge-50 person	1.2m ² (15sf) per person
Secure Luggage Storage	installation specific
Concierge Station	installation specific
Registration Desk per 5 guest rooms	.56m ² (6sf) per desk clerk
Conference/Training Room/VTC—75 person	1.2m ² (15sf) per person
Fitness Area	varies per installation
Food Service	installation specific
Retail Sales	installation specific
Balconies	installation specific
Outdoor Recreation Areas	installation specific

2-2.4 Special Considerations for Renovations. Lodging renovations range from building and system upgrades to complete gutting and reconfiguration. The requirements and recommendations set forth in this design guide apply to new construction and to renovations, and every attempt to meet these standards will be made. Flexibility in these construction standards may be considered based on pre-existing conditions such as type of construction, location and character of load bearing walls and columns, and other physical limitations. When possible, renovation projects must meet the same Net Living Area and functional space criteria applicable to new construction. In some cases, criteria waivers are necessary due to existing conditions that cannot be altered. Such conditions and waiver requests will be coordinated and approved by the responsible Major Command.

2-3 FUNDING CONSIDERATIONS. Additional special factors and funding sources must be considered when establishing initial project cost estimates to assure a complete and usable facility. Reference *AFI 65-106, Appropriated Fund Support of Morale, Welfare, and Recreation and Non appropriated Fund Instrumentalities* for guidance regarding work classification, fund sources, and approval levels of nonappropriated fund projects.

Air Force standards such as force protection, sustainability, and accessibility will be incorporated. Additional information and guidance regarding work classifications, funds sources and approval levels may be found in the following publications: *AFI 34-246, Air Force Lodging Program*, *AFI 32-1022, Planning and Programming of Non appropriated Fund Facility Construction Projects*, and *AFI 32-1032, Planning and Programming Real Property Maintenance Projects using Appropriated Funds*.

Table 2-5 Visiting Quarters Funding Sources

Visiting Quarters Funding Sources	
Description	Funding
Project Design/A-E Services	Project Funds (Headquarters Air Force Services Agency)
Site Design	Project Funds (Headquarters Air Force Services Agency)
Signage	Project Funds (Headquarters Air Force Services Agency)
Site Amenities	Project Funds (Headquarters Air Force Services Agency)
Fencing	Project Funds (Headquarters Air Force Services Agency)/ Base/Major Command Funds
Companion Projects	Base/Major Command Funds
Architecture	Project Funds (Headquarters Air Force Services Agency)
Force Protection	Project Funds (Headquarters Air Force Services Agency)
Security Systems	Base/Major Command Funds
Interior Design (SID package)	Project Funds (Headquarters Air Force Services Agency)
Equipment/Appliances (CF/CI) (Equipment Schedule)	Project Funds (Headquarters Air Force Services Agency)
Furnishings/Draperies (GF/GI) (CID package beyond SID)	Lodging Funds (Headquarters Air Force Services Agency)

2-3.1 **Site Considerations**

2-3.1.1 Site Analysis. A preliminary soil analysis is essential to determine whether extensive site work and foundation costs are required. Local environmental and climatic conditions can also impact costs. Projects located in areas prone to seismic activity generally cost more, and programming will take this information into consideration. Climatic influences such as heavy snow loads, wind loads, high humidity, and extreme temperatures result in additional costs due to structural, and to a lesser extent, insulation requirements. Also, an organic soil analysis for the landscape plant materials on the exterior of the facility must be performed. Lodging that occurs in designated historic districts may incur additional cost in order to ensure compatibility with historic structures. The selected site for a new Visiting Quarters campus must be a “clean” site and may require companion appropriated funds projects to be accomplished prior to the start of the Visiting Quarters project. A clean site is defined as an environmentally clean site with all structures and fencing removed, and all infrastructure relocated. This is a base or Major Command responsibility.

2-3.1.2 Site Grading. Headquarters Air Force Services Agency will fund site development costs within the project to include cut/fill and other work to make the site usable. Potential grading will be a consideration during the site selection process to keep these costs minimal.

2-3.1.3 Site Amenities. Visiting Quarters projects will include outdoor passive and/or active use areas, pavilions and/or site amenities as required per installation. These features must complement the architecture of the campus, and will include project funded amenities such as walks, site lighting, landscaping, pavilions, and fencing if used to screen equipment or dumpsters enclosures only. Additional amenities such as barbecue grills, tables, and benches may be considered for funding with project funds if available, but will typically become the responsibility of the base or Major Command. Site fencing is a base or Major Command funded amenity and will not be accomplished with project funds.

2-3.1.4 Infrastructure. Communications and infrastructure requirements for lodging are similar to high-energy demands and occupancy of the commercial hotel industry. Companion appropriated funds projects may be required to support necessary upgrades and alterations and will be studied to determine if separate funding must be obtained through the base or Major Command. Lodging funds cannot be used to construct base infrastructure. Programmers must determine these requirements and include them in the construction budget if they are associated with the cost of supporting facilities.

2-3.2 Building Systems Considerations

2-3.2.1 Mechanical Systems. The type of mechanical system selected has a major impact on the cost of the project. An existing steam and chilled water distribution system from a central energy plant may have the capacity to supply the new construction. In other cases, the new Visiting Quarters campus may justify its own central energy plant, or it may be more cost effective to provide each facility with a separate mechanical system, or to provide individual systems for each guest room. Make these decisions as early in the programming or design process as possible. Life cycle cost analysis is especially important for mechanical systems in lodging facilities due to unique user requirements.

2-3.2.2 Security Systems. The addition of security systems such as intruder detection systems will be the responsibility of the base or the Major Command.

2-3.2.3 Fire Protection Systems. Fire protection systems for lodging facilities will receive special attention regarding their impact on construction costs. These systems may incur additional costs due to the repetitive nature of lodging facility designs, their occupancy classification, and dependent on selection of system, may increase the water demand for the project.

2-3.3 Building Design Considerations

2-3.3.1 Codes and Standards. Force protection, sustainability, and accessibility are inclusive in all Air Force lodging designs. Incorporating sustainable design features into lodging facilities may result in higher initial costs, but will always be justified by a thorough life cycle cost analysis. Project programmers have the opportunity and responsibility to ensure that sustainable development goals are supported in the project budget. Design options will not be excluded because of increased cost without further analysis. Additional investments for one building system can often reduce the first costs in other systems through an integrated design approach. For example, downsizing the HVAC system can offset the increased cost of energy efficient lighting systems, which produce less heat. For further information and guidance, reference the [USAF Sustainable Facilities Guide](#).

Projects will conform to *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings* and will consider the impact these standards have on the overall construction cost of the project. Coordinate with the base security forces personnel for additional local guidance or requirements. Specific force protection requirements such as chemical/bio collective protection systems are installation specific, especially in overseas locations, and will not be included in project funds.

Accessibility and universal design is essential in lodging design and construction. Accessibility guidance is provided in the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines*.

2-3.3.2 Special Design Features. Expenses associated with special design features in a guest room or suite can account for a large portion of the total project cost because the features are continuously repeated. Programmers and designers must be aware of current unit cost factors. Programmers will only use unit costs; therefore, designers must be concerned about the cost impact of special design features.

2-3.3.3 Guest Room Proportions. The dimensional proportions of guest rooms and suites are critical to the overall construction cost of a Visiting Quarters facility. Designers must consider not only efficiency in design of the individual guest rooms; they must also focus on how the guest rooms string together to create a building. While proportions, interior wall quantity, and the number of doors can be optimized to produce the lowest cost, designers must also consider the impact these factors may have on privacy, functionality, and aesthetics.

2-3.3.4 Signage. Signage, including the primary exterior sign, all interior and exterior building signage, including room and informational signage, will be accomplished with project funds. Required site signage, including parking and street signage, is the responsibility of the base and Major Command. All signage will be in accordance with the installation signage program and *UFC 3-120-01, Air Force Sign Standards*.

2-3.3.5 Interior Design. Structural Interior Design (SID) package, equipment and appliances will be funded with project funds and will be Contractor Furnished/Contractor Installed (CF/CI). Interior finishes, built-in cabinetry, toilet accessories, chair rails, corner guards, and interior signage are included and will be provided and installed by the contractor. The Comprehensive Interior Design (CID) package will be funded with separate lodging funds and will be Government Furnished/Government Installed (GF/GI) after completion of the construction or renovation project.

CHAPTER 3 DESIGN

This chapter provides general considerations and technical guidance relevant to all phases of design for new or renovated Visiting Quarters on an Air Force installation. Guidelines are provided for planning and designing the site, building footprint, infrastructure, building systems, room configurations, support functions, character and circulation, including detailed design requirements for each functional space. Specific information that expands on these overall principles must be developed for each individual Visiting Quarters project.

The success of the new Visiting Quarters program has established a high level of quality and design excellence to be applied towards all future design and construction as exemplified with the new Osan Visiting Quarters construction Figure 3-1. Coordinate with Headquarters Air Force Services Agency to determine if site visits to similar successfully designed and constructed Visiting Quarters projects are possible.

Figure 3-1 Visiting Quarters Design—Osan Air Base



3-1 SITE DESIGN

3-1.1 General Considerations. Site planning is one of the more important elements of any project design and can greatly impact the overall success of the Visiting Quarters project. Involvement of the community planner, architect or landscape architect, interior designer, and civil, mechanical, electrical, and communication engineers, as well as the Services staff, is essential. Sustainability, force protection and accessibility considerations shall be incorporated into all projects and shall become part of the design solution. Reference the *USAF Sustainable Facilities Guide, UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*, and the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines* for guidance and standards.

Community planning is an integral part of site planning. Although the emphasis in Visiting Quarters campus planning is to create a residential neighborhood

atmosphere, somewhat separated from surrounding base administrative and mission related functions, proximity and access to common public use facilities is desired. The design of vehicular paths, pedestrian paths and landscape can help define layers of boundary around the lodging facility campus to provide this separation, but can also enhance the flow into and out of the adjacent community areas, such as the dry cleaner, post office, food court, theatre, dining hall, and club. Adjacent recreational spaces additionally enhance these layers of boundary and can buffer other non-desired areas or functions. Site planning and community planning will define an edge to the Visiting Quarters campus, while considering the importance of adjacent community and common public areas. Reference *AFPAM 32-1010 Land Use Planning* for additional useful information and guidance on this subject.

3-1.1.1 Organization. Achieve spatial balance and scale through thoughtful placement and arrangement of structures, landscaping and landforms. Pay special attention to building orientation, mass and scale in developing the site plan. Develop a sense of order, arrival, orientation and community in planning the site. Insofar as possible, lodging structures must not be overwhelming in apparent size. Site lodging facilities in relationship to one another to create outdoor spaces for use as passive or active recreation areas. New Air Force Visiting Quarters facilities will range from three to five stories in height based on overall room requirements and available acreage on the installation to support a consolidated lodging function. This configuration ensures an efficient use of available real estate, but may require additional fire protection, structural, and life safety costs associated with buildings over three stories in height.

3-1.1.2 Climatic Considerations. Visiting Quarters design and building orientation must take advantage of local climate conditions. Where practical, use passive solar construction techniques to reduce energy consumption. Local climate conditions must be considered as well as other site organization issues such as the creation of outdoor space, building scale or orientation to other facilities, when determining the best project site.

Site facilities to take advantage of the positive features of the site. Provide protection from undesirable winds and glare, shading from excessive sun in warm climates, and orient operable windows to take advantage of summer breezes. Solar gain and prevailing winds can enhance energy conservation and yield significant cost savings. Building placement and design will also take advantage of views that are scenic, pleasant, or interesting. Designers must be sensitive to the approaches to the facility and strive to create a clear sense of arrival for newcomers. Design roof overhangs to work with sun angles to provide solar shading. Achieve mutual shading by sensitively arranging adjacent structures. Avoid excessive east or west-facing glass and design for maximum cross-ventilation where feasible.

3-1.2 Circulation

3-1.2.1 Vehicular Access. Provide access to lodging facilities from secondary (collector) streets to minimize the congestion associated with main arterial streets. Where possible, divide main entrances with landscaped traffic medians between entry and exit

lanes. Because of the high volume of traffic using the entrances, the recommended minimum width of non-divided entry roads will be 7.3m (24'-0"). Consider passenger loading and/or drop off areas near the lodging facility entrances, providing convenience to guests. Plan vehicular layout to eliminate, or at least minimize, the adverse impact of noise and headlights shining into guest room windows. Consider delivery trucks, and required easement area. Follow force protection criteria defined in *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings* for all vehicle access design, critical in determining allowable set-backs, eliminating lines of approach perpendicular to the building. Consider snow dumping, especially in northern tier installations. Consider installing removable bollards as needed to restrict unauthorized vehicle access.

3-1.2.2 Emergency Service. Reference the *DoD Military Handbook 1008C—Fire Protection for Facilities Engineering Design and Construction* for a minimum separation required between lodging facilities and the closest adjacent building. This separation is for fire protection purposes but may also be dictated by force protection requirements and local fire protection policies. Provide access to fire protection vehicles from three sides. Obtain width, weight, and turning radii of fire fighting vehicles from the base fire department.

3-1.2.3 Service Vehicles. Access streets and parking areas will be designed to accommodate service vehicles. Where interior court areas are proposed between adjoining lodging facilities, consider designing the main pedestrian walks to accommodate such vehicles. As an example, these walkways must be a minimum of 2.4m (8'-0") wide and constructed using reinforced concrete to accommodate medium weight vehicles. Consider treating the walkways with a patterned concrete system to minimize the negative visual impact of the wider access route. Consider materials such as concrete grass road type pavers to provide access to infrequent service vehicles. Consider installing removable bollards as needed to restrict unauthorized vehicle access. Where possible, separate service entrances associated with mechanical rooms or mechanical enclosures from guest parking areas.

3-1.2.4 Bus Route Access. Where possible and appropriate, access to public transportation systems will be considered in project design. If the base provides bus service, designers will consider developing shelters and walks to serve guest needs. Bus shelters must be compatible with the architectural style of existing buildings and guidelines established by the base.

3-1.2.5 Pedestrian Access. Walkways to building entrances will be 2.4m (8'-0") wide. All other sidewalks will be 1.8m (6'-0") wide. Design and grade sidewalks to provide barrier-free access to the first floor of all lodging facilities and to any associated outdoor use areas. Provide connections to other functional areas of the base with pedestrian circulation systems. Consider including links to jogging/biking trails as part of the site development process. In northern tier locations, consider the use of sidewalks above steam heat tunnels to keep walkways free of ice in the winter, or consider heated or covered walks in lieu of open corridors.

3-1.3 **Parking**

3-1.3.1 Guest Parking. Provide .5 parking spaces per guest room, with 5% to be used as reserve parking for guest suites. Providing 1 parking space for all lodging staff. Parking areas will be sized to local conditions and may be reduced. Additional visitor parking with the exception of accessible parking is not required, but may be an option based on local requirements. This results in a significant area of paving which, if not planned properly, will have a negative impact. This parking ratio applies to most lodging facilities, but may be reduced based on the parking needs of the specific project. Paving increases storm water runoff, results in increased reflected and absorbed radiation, and raises the ambient air temperature of the surrounding area. Parking areas also result in reflected sun glare off vehicles, increased air pollution, and concentrated contamination of runoff from leaking oil and antifreeze.

Grading can help to create a transition zone within parking areas, between parking and buildings, and between multiple facilities. Where topography allows, design parking areas in multiple levels with transition zones. This may reduce grading requirements and allow the designer to balance the volume of cut and fill. Design these transitions as landscape buffers much like traffic islands to soften the visual impacts. Consider sustainable alternatives to solid pavement. Many of the negative impacts of parking areas can be mitigated or lessened by improved design techniques. Trees planted in parking lot islands will intercept reflected radiation, visually break up the mass of paved surface, and provide shade for vehicles. Properly located, the traffic islands can also provide safer pedestrian circulation.

3-1.3.2 Accessible Parking. Provide accessible parking spaces in accordance with the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines*. Locate these parking spaces to provide the most convenient access to the building entry.

3-1.3.3 Motorcycle Parking. Designated motorcycle parking areas are not required based on infrequent use by lodging guests, therefore, not included in this guide as detailed guidance.

3-1.3.4 Bicycle Parking. Provide bicycle parking facilities within the lodging campus area as determined by Headquarters Air Force Services Agency and the installation. Racks will comply with base architectural guidelines.

Provide all bicycle parking on concrete surfaces adjacent to sidewalks or first floor building corridors. Parking areas must be covered and screened from view of the general public. Consider covered bicycle parking enclosed on a minimum of 3 sides, or lockable bicycle lockers in northern tier or highly corrosive environments, which maximize security and minimize visual clutter.

3-1.4 **Site Considerations**

3-1.4.1 Finished Floor Elevation. Establishing the finished floor elevation of Visiting Quarters facilities is one of the more important aspects of site planning. The finished floor elevation affects grading, cut and fill, visual impact of the facility and interior-exterior transitions. In addition, the finished floor elevation has a significant impact on the landscape architect's ability to effectively introduce plant materials into the new environment. When the approach is to level the site without sensitivity to other demands, the results often are catastrophic, resulting in barren sites lacking visual interest. The landscape architect, architect, and civil engineer must work closely together to achieve optimal design results.

3-1.4.2 Grading. Grade the site to achieve an orderly transition from the point where guests enter the site by vehicle or on foot to the point where they are at the first floor entrance. Site grading must consider the impacts of the parking area, the lodging facility, bus-stop shelters, sidewalks, outdoor passive use areas, mechanical equipment, and trash dumpsters. Where appropriate, use grading to control the negative visual impacts that these man-made facilities have on the visual environment. See the discussion of landforms below. Lodging facilities tend to be linear and relatively narrow in configuration and therefore lend themselves to an orientation paralleling existing contours. Determine if local building codes require storm water retention. Where on-site storm water retention is required, the location of retention areas must be carefully thought out in terms of function as well as visual impact. Use large retention sites for outdoor recreation areas.

3-1.4.3 Landforms. The landscape architect and the civil engineer must work together to use landforms to soften the impact of parking on the landscape and to positively enhance force protection of the lodging facility campus. Use landforms such as mounds and swales in conjunction with landscape plant materials to soften or obscure the parking areas, provide spatial articulation, or enhance drainage structures or surface water retention areas. Use landforms to add interest and diversity to the project. In particular, landforms can perform an important function around outdoor activity areas by screening undesirable views.

3-1.4.4 Storm Drainage. The successes and failures of site planning rely heavily on the designer's ability to facilitate drainage. Depending on the geographic location and the availability of nearby subsurface storm drains, provide underground storm drainage for each lodging campus. All site water must either be intercepted in drop inlet structures or be designed to drop directly into a subsurface system. If subsurface storm drains are not available at the proposed site, include as part of the lodging facility project. As a minimum, divert surface water to an underground system to a point where it is discharged into above ground storm drains. The project will provide for appropriate surface water retention and erosion prevention, and will provide for drop inlets as necessary to intercept surface runoff and prevent walkways from being flooded. Refer to the *USAF Landscape Design Guide* for further guidance.

3-1.4.5 Utility Corridors. The site planner will develop underground utility corridors (easements) in coordination with the base community planner, electrical, mechanical, communication and civil engineers. Size corridors to accommodate future expansion. Place utility corridors no closer than one and one-half times the crown width of nearby mature trees or 10.7 meters (35 feet), whichever is greater. Locate utility corridors to allow for future street-tree plantings. Consider using pipe tunnels and trenches.

3-1.5 Site Amenities

3-1.5.1 Site Furniture. Well planned site amenities and landscape development enhance the visual experience of a Visiting Quarters campus and completes the lodging project. The importance of planning and programming this last part of the project is critical and should not be an afterthought. The selection of site furniture in addition to landscape and signage provides a finished appearance. Site furniture that is in harmony with the architectural style of lodging facilities complement the building, and makes the outdoor spaces more usable and organized. Poorly selected and/or placed site furniture can result in major disharmony, drawing attention away from otherwise superbly designed site and building features. The landscape architect must coordinate the selections with the architect and interior designer to ensure smooth transitions are made from within the building to the outdoors and vice versa. Effective transitions are achieved when building materials, colors, and design details from the building are incorporated into and reinforced by the paving materials, signage and site furnishings.

3-1.5.2 Site Lighting. Site lighting is an integral part of any lodging project. Provide lighting to ensure occupants have a means of safely moving between outdoor spaces. All signage and lighting must be in compliance with the installation's standards. The selection of materials and locations must be a joint decision between the landscape architect and the electrical engineer. Energy-efficient lamps such as high-pressure sodium with color correction ensuring optimum visual acuity are recommended for energy-conscious site lighting. Consider life-cycle costs of lamp replacement, though, when specifying fixture and lamp types. Provide adequate site lighting at any point where there is a change in grade requiring steps, near accessible parking areas, under stairwells, and near main entrances to buildings. A lighted sign may be appropriate for night visitors. Use the recommendations of the *Illuminating Engineering Society North America Lighting Handbook* to establish illumination levels. In particular, do not exceed foot-candle level requirements as stated in the Recommended Practice Manual: Lighting for Exterior Environments. Design exterior lighting such that zero direct-beam illumination leaves the building site. Consider motion detection and photosensitive sensors to achieve energy efficient lighting design. Additionally, consider a solar collector system if the geographical location of the lodging facility can support the required solar levels required.

3-1.5.3 Outdoor Areas. Include outdoor passive and/or active use areas in all lodging campus plans. Where appropriate, design pavilions to become an integral part of the site. The pavilions must complement the architectural style and materials of

the lodging. These features will include project funded amenities such as walks, site lighting, landscaping, pavilions, and fencing if used to screen equipment or dumpsters enclosures only. Additional amenities such as barbecue grills, tables, and benches may be considered for funding with project funds if available, but will typically become the responsibility of the base or Major Command.

3-1.5.4 Sustainability. Incorporate sustainable design concepts into the lodging facility campus. Consider recycling centers and containers and other refuse issues when developing site design and landscaping. Coordinate locations of recycling and refuse containers with site furnishings and landscape to complement the campus and building design. Emphasize ease of use and service access to these containers.

3-1.5.5 Signage. Follow the guidance defined in *UFC 3-120-01 Air Force Sign Standards* and as supplemented in installation standards. Exterior signage will be compatible with the architecture of the campus, provide clear directional and informational assistance, and will be accomplished with project funds. A well placed exterior sign, lit and clearly identifying the Visiting Quarters, will be provided at the main approach to the facility, and will also be accomplished with project funds. Required site signage, including parking and street signs, will be funded by the base or Major Command.

3-1.5.6 Fencing. Fencing may be necessary on the Visiting Quarters site based upon location and surrounding facilities. Any fencing used as a screening material will be compatible with the lodging campus and surrounding architecture, comply with base standards, and will be accomplished with project funds. Fencing around the perimeter of the site, if desired, will be the responsibility of the installation or Major Command.

3-1.6 Landscape Architecture.

Figure 3-2 Landscape



Landscape plans developed for the Air Force require the services of a professional landscape architect working in conjunction with the other disciplines to achieve the total design intent for the project. The landscape architect must have an intimate knowledge of the indigenous plant materials for the region. Refer to the *USAF Landscape Design Guide* for further guidance. In addition, the landscape architect must conform with DoD force protection guidance referencing maximum height and location of plant materials adjacent to a lodging facility. The design intent will include creating an aesthetically pleasing landscape minimizing resource and maintenance requirements. The fundamentals of good landscape design include: proper planning and design, plant selection, plant installation, use of turf alternatives, use of mulch materials, zoning of plants as per water requirements, soil improvements, efficient irrigation, and appropriate maintenance considerations. Structure the landscape design program to satisfy the architectural, engineering, aesthetic, and environmental requirements of each project while minimizing maintenance needs. Several factors must be evaluated when performing a site analysis including visual elements, hydrology, security, climatic conditions, topography, maintenance, existing vegetation, spatial and program analysis, soil quality, and circulation patterns.

3-1.6.1 Enframement. Identify appropriate external views of the lodging facility during the site analysis process. Using landscape design elements, focus attention to important features of the building by manipulating and placing tree masses and screening undesirable features.

3-1.6.2 Visual Enhancement. Landscape plant materials used for utilitarian purposes, such as screening service areas or providing shade, will also enhance the attractiveness and livability of an area. The oppressive feeling of monumental scale can be relieved by the careful selection of proper plant materials. Visually separate multiple buildings into several pleasantly framed units, and enhance individual buildings within a group. Shrubs and small trees arranged in strategic groups around a building improve the appearance by softening structural lines. This also helps to integrate the building with its site and diverts attention from unattractive structural features.

3-1.6.3 Spatial Articulation. Use plant materials to create outdoor enclosed spaces and to separate such spaces one from another. Also use plant material to direct people through outdoor spaces by visually defining and reinforcing patterns of movement. The degree of enclosure, separation, or movement depends upon the density, form, and type of plant material used. Keep in mind that the effects of deciduous plants vary with the season, whereas evergreens remain constant year-round.

3-1.6.4 Visual Screening. Unattractive views or objects identified by the site analysis will be screened with appropriate plant materials to minimize negative visual impacts. Trash dumpster areas, pad mounted electrical transformers, parking areas, and mechanical yards are examples of such views or objects. Sufficient access to mechanical and electrical equipment must be maintained, though, to allow for

maintenance and repair. While plant materials can be used solely for screening purposes, a combination of plant and architectural materials offers an ideal solution to screening needs. Landforms coupled with plant materials will provide an immediate effect while waiting for the plant materials to mature.

3-1.6.5 Wind Control. Wind is either a pleasant or unpleasant climatic factor depending on ambient air temperature, relative humidity, and velocity. Use plants as wind control devices to slow, guide, deflect or filter the wind. Knowledge of the direction and speed of prevailing winds at different seasons of the year is necessary. When plants are used as a wind barrier, wind is generally affected for a distance of 2 to 5 times the height of the barrier to the windward side and 10 to 15 times the height of the barrier to the leeward side. Plants are better screens than fences or walls for windbreaks because they permit some degree of wind penetration. Irregular forms provide a more effective windbreak than evenly spaced plants. A variety of plant species and sizes also provide a better windbreak than one consisting of a single species. For climates where occasional to frequent snows occur, consideration must be given to the effects of snowdrifts.

3-1.6.6 Sun Control. The skillful use of plant materials around buildings, along walkways, and around parking areas significantly increases the energy efficiency of buildings and reduces the ambient air temperature around the lodging facility project. By intercepting the direct and reflected radiation, plant materials control the absorption of heat energy by the building and parking areas, thus reducing energy costs.

3-1.6.7 Landscape Maintenance. Include landscape establishment and maintenance within the initial contract for installation of plant materials. The duration of the establishment period must be for a period of one year and shall not be included as a contract option. The establishment period requirements will include irrigation, mowing and edging, mulch replacement, inspection/control of pests and weed control, tightening staking/guying materials, pruning, fertilization, and maintaining watering saucers.

3-1.6.8 Landscape Irrigation. Landscape with indigenous materials and plants to minimize irrigation needs. Include irrigation systems in lodging facility projects sited in arid and semi-arid climatic regions. Use bubbler or drip irrigation systems adjacent to building facades to minimize impact of overspray. Provide all irrigation systems with solid-state automatic multi-station controllers, state-of-the-art control valves, and backflow preventers in accordance with building codes. In cold climates, locate backflow preventers in the mechanical room. Where freezing is not a problem, locate backflow preventers within screened mechanical enclosures. Include adjusting turf spray coverage, duration of watering cycles, repairing leaks, and general maintenance to ensure proper functioning during the maintenance period for all irrigation systems. Water conservation is a high-priority factor in development of the irrigation design. Take advantage of non-potable water if possible.

3-2 BUILDING DESIGN. Building design for Visiting Quarters shall address needs for human comfort and experience while coordinating building systems with functional requirements. Comprehensive interior design is an integral component, ensuring appropriate finish, material, and furnishing selections. The goal is to provide a cohesive lodging campus reflecting quality through appearance, appropriately sited within the existing community, ensuring fulfillment of functional and operational requirements, and accomplishing the needs of the guest.

3-2.1 Architecture

3-2.1.1 Mass and Scale. Architectural scale is defined as the comparative relationship of a structure or space to the human form to possess a human scale. The relative proportions, height, form and volume of a building or space, as well as its formal relationship to other buildings or spaces, contribute to achieving this sense of scale. Lodging facilities must provide a residential environment with an architectural scale that imparts a clear sense of relative comfort, ease, and satisfaction. Building mass is defined as the overall bulk or total volume of space a building occupies. Large buildings such as lodging facilities, aircraft hangars, and maintenance facilities often have a greater mass than other buildings on a base. Modulating the form and facade of these buildings with setbacks, repetitive details, and less dominant colors softens their physical appearance and enables a blending of facilities in terms of form, proportion, and perceived size. The size, shape, proportion, repetition, and placement of design features such as fenestrations, roofs, and columns, etc., are elements that combine to project the architectural character and mass of a building.

Figure 3-3 Architecture—Osan Air Base



3-2.1.2 Architectural Compatibility. The architectural character of the facility must be in context with its surroundings. Architectural character is usually defined in the base architectural compatibility standards available at most installations. These standards provide a basis for compatibility and order within the built environment. The intent of these standards is not to create uniformity, but to promote a sense of harmony and a respect for local and regional design and architectural characteristics. Well-designed buildings respect the characteristics of the built environment in the local region through compatible architectural style, choice of construction techniques and materials, and form. Architectural compatibility and appropriate proportions can be achieved by integrating a vocabulary of scales, forms, color palettes, and materials that blend with and respect the built and natural environments. The result is a combination of facilities that complement each other and create balance and harmony. Architectural compatibility guidelines are not intended to compromise design expression, but rather to provide a framework for the development of quality design.

3-2.2 Exterior Materials and Finishes

3-2.2.1 Exterior Finish Materials. Select reliable, conventional building systems for lodging facilities, and use building materials and finishes that are durable and easy to maintain. Architectural systems must be selected based on their aesthetics, simplicity, economic characteristics, and compliance with installation architectural guidelines. Consider durability, functionality, economy, low maintenance requirements, and architectural compatibility when selecting exterior finish materials. Brick, split face concrete block, and exterior insulation finish systems have been used successfully as primary exterior wall finishes. While these are good systems in terms of thermal performance, integral color, and moisture penetration, heavy-duty reinforcing mesh must be specified at all areas subject to impact damage. Exterior insulation finish systems require tightly written specifications to ensure proper installation, materials, and details, including provisions to limit exposure to finished grade.

Consider the recycled content requirements for affirmative procurement of products included in the Environmental Protection Agency list of guideline items such as insulation, cement and concrete, latex paint, patio blocks, and structural fiberboard. This list will change as Environmental Protection Agency adds new items every other year. Federal agencies must purchase products made with recycled materials unless these products do not meet technical requirements, are more expensive than comparable virgin material products, are not available competitively from two or more sources or are not available in a timely manner. The complete list of guideline items and their recycled content requirements is found on the *Environmental Protection Agency* website. Additionally, designers are encouraged to work with the product manufacturers for other available products.

3-2.2.2 Windows. All living areas and places of assembly must have operable windows to provide natural ventilation. Use tight-fitting, insulated, commercial-grade windows. Light-duty residential grade windows are not acceptable. Windows and

glazing will meet force protection construction standards minimum requirements. Low emissivity (Low E) double pane glazing is recommended for increased thermal performance, ultraviolet retardation, and maximum light transmission. Install heavy-duty insect screens on all operable windows. Size windows nominally between 10 and 15 % of the floor area they serve. Increase window size and area to maximum allowable to increase the emission of natural light into guest rooms. Windows serving guest rooms must be operable and may be used as a secondary means of egress. All windows must be compatible with the type of window coverings to be used, and will allow ease of maintenance, such as tilt-in features. Provide solid surface windowsills at all windows. Consider specifying Energy Star labeled windows for energy conservation. Qualifying products are listed on the *Energy Star website*.

3-2.2.3 Doors. All public area entrance doors will meet force protection and accessibility construction standards minimum requirements and will be a minimum of 910mm (3 feet) in width. Main entrance doors will be sensor operated. Designated exit doors must be equipped with operable panic hardware. Alarms that are annunciated at the front desk and can be activated at any specified time will be installed on all remote exit doors. Doors will be fully weather-stripped, include a heavy-duty metal threshold and minimum 1/2" grade change to prevent drafts, dirt, water, and insect entry, and must be thermally insulated. If located adjacent to exterior service areas, provide insulated overhead coiling doors into supply areas. Exterior entrance service doors will be hollow metal with hollow metal frames. All doors require doorstops and wall mounted bumpers will be used where possible. Provide blocking in walls as required.

3-2.2.4 Roofing. Unless the installation's architectural compatibility standards state otherwise, all lodging facilities will have sloped roofs. Sloped roofs not only ensure positive drainage, but also impart a more residential image than do flat roofs. Standing seam metal roof systems have excellent performance characteristics, but must be in context with the installation's architectural compatibility standards. Composition shingles and clay tile roofing may also be appropriate. Restrict the use of concealed gutters on standing seam metal roofs because of problems with water shedding. Avoid the use of interior gutters to eliminate potential leakage. Consider ice and snow hazards when locating sloped roofs over building entrances. Avoid using tapered roof insulation to achieve slope. Coordinated exterior location of dryer vents and bath exhausts to minimize roof penetrations and lessen the visual impact on exterior elevations.

3-2.2.5 Building Signage. All signage will be in accordance with the installation signage program, accessibility requirements, and *UFC 3-120-0 Air Force Sign Standards*. Exterior signage will be compatible with the architecture of the Visiting Quarters campus and the installation architectural guidelines. Building signage will be funded as part of the Visiting Quarters project and will provide clear directional and informational assistance. Provide clearly visible unit numbers for the main entrance doors. Mechanical, electrical and/or utility room doors will have identifying signage to match.

3-3 INTERIOR DESIGN. The interior design of Visiting Quarters facilities encompasses functional area requirements, relationships, and interior materials and finishes. Several basic lodging functions must be addressed during the design phase of any lodging project. Designers must fully understand the relationships between these interactive functions and take a holistic approach to creating a fully integrated facility.

Residential. Guest rooms are residential. Activities include sleeping, resting and relaxation, personal hygiene and grooming, personal cooking (microwave), and personal study. Recreational activities are essential and include television viewing, and relaxation areas.

Guest Support and Services. Guest support is critical to the quality level of the guest visit. Specific support activities including reception, vending, laundry, retail sales, administration, business centers, secure luggage storage, and meeting/conference rooms. Service activities allow the facilities to operate efficiently and include back-of-house and guest support services. Back-of-house activities include utility, maintenance, employee areas, housekeeping, laundry, bulk storage, linen storage, supply storage, delivery and dumpster access.

3-3.1 Functional Area Requirements. The design and configuration of lodging facilities will employ the concepts of a limited service private sector hotel—i.e., a hotel that does not have food and beverage capability. Some projects may require reception for guest check-in/check-out, and administrative areas for the entire lodging management staff. In other cases, the project may contain requirements for sleeping accommodations only. Back-of-house functional areas, though, are required regardless of the configuration. Primary design considerations are presented for each functional area indicating the anticipated use, performance, organization, character, and relationships of specific areas. Criteria are included herein for size and critical dimensions, storage requirements, furnishings and equipment, and other technical requirements. All new lodging operations require various functions, which may already be provided on an installation. Replacement or enhancement of such existing requirements will be considered in the programming of the new facility.

Table 3-1 Functional Area Requirements

Core Areas	
Guest Rooms	Public Toilets
Conference Room (25 person)	Guest Laundry
Business Center	Vending Areas
Entrance Vestibule	Corridors/Circulation
Kiosk/Coffee Area	Utility Rooms
Secured Luggage Storage	Storage Areas

Installation Specific Areas	
Reception Area	Concierge Station
Conference Room (75 person)	Receiving
Fitness Area	Exterior Storage
Administration	Supply Areas
Communications Room	Linen Storage
Lobby	Janitor Areas
Food Service	Housekeeping Areas
Retail Sales	Maintenance Workshop

3-3.2 Guest Rooms and Suites

3-3.2.1 Guest Room and Suite Bedroom/Living Area. The minimum dimension of the living/bedroom area will not be less than 3m (10'-0"). Minimize doorways or openings in perimeter walls of the living/bedroom area in order to enhance flexibility in furniture arrangement. Ceiling height must be at least 2.7m (9'-0"). A love seat sleeper will be used in guest rooms in lieu of a second bed when a surge capacity is required and approved by Headquarters Air Force Services Agency. This sleeper bed will fold out without disrupting furniture arrangement or impeding egress requirements. A 600mm deep (24") coffee bar area including an undercounter refrigerator, a coffee maker, and an undercabinet mounted microwave oven may be a built-in design. This counter shall be a solid surface material with a full height back splash. The cabinets above shall be solid plywood construction with hidden hinges, integral routed pulls, raised panel solid wood doors with melamine interior and fixed shelving, stained to match case goods as specified in the Comprehensive Interior Design package. Provide a 635mm (25") flat screen, high definition, television in all standard guest rooms with a separate combination DVD/VCR player. Consider the size of this television when selecting armoire size and function. Ensure that the armoire doors are fully retractable.

Figure 3-4 Guest Room Plan



Table 3-2 Guest Rooms and Suites

Required Spaces and Sizes	
Guest Room	26m ² (280sf)
Accessible Guest Room	30m ² (320sf)
Suite	52m ² (560sf)
Accessible Suite	52m ² (560sf)

Figure 3-5 Guest Room—Osan Air Base



3-3.2.2 **Guest Bath.**

Figure 3-6 Typical Bath Faucet Sets



Figure 3-7 Typical Bath Accessories



Figure 3-8 Typical Bath Accessories



Each guest room/suite will have a private bath. Provide a solid surface vanity counter with integral sink, back splash, and full skirt with eased edges to receive a recessed tissue holder and toilet paper holder. This counter will be open below with a full width solid surface storage shelf located 300mm (12") above the finished floor. A second vanity may be provided for rooms designed for surge capacity. Provide separate hot and cold lever water handles with an elongated neck spigot, washerless ceramic mixing valves, and anti-scald device at each lavatory. All faucet sets and bath accessories will match and will meet superior performance specifications. Provide a full-width, full-height, frameless mirror with polished bevel edges all sides above the vanity counter in all baths.

Provide a cast iron bathtub, white, 1.5m (5'-0") in guest room and suite baths, with a non-slip surface. Provide a solid surface tub surround material, seamless, with a single recessed soap dish. Provide a showerhead with mounting hardware that allows height adjustment over a wide range and mixing valve. Consider heavy-duty hand-held showerheads connected to a flexible hose that fits into an adjustable-height holder mounted on a vertical rod. Provide a screw-in shower rod with curtain above the tub, mounted at 2m (6'-6") above finished floor to top of rod. Consider the use of a 1" diameter enlarger rod to provide additional area within the tub. Sliding doors will not be provided. Provide a retractable clothes line in the tub for use by guests. In all baths, grab bars will be provided in the tub area with walls reinforced to support a 113kg (250lb) minimum pull force. Tub grab bars will be incorporated as an integral component of the tub surround. All grab bars will be powdered coated stainless steel, white, in lieu of standard stainless steel finish. Provide a white, floor mount, tank type, elongated toilet bowl with full seat and lid. Wall hung units may be considered to ease maintenance, but will require a code analysis.

Provide a recessed plastic body medicine cabinet with mirror on the side wall adjacent to the vanity. Provide toilet accessories to include one robe hook mounted at 2.8m (7'-6") above finished floor and two 600mm (24") long towel bars (one will be located convenient to the vanity, the other convenient to the tub). A recessed single roll heavy-duty toilet paper holder and tissue holder will be mounted in the face of the

vanity. A wall mounted hair dryer will be located adjacent to the vanity area and will be considered in towel bar placement and outlet placement. Allow space beside the toilet for a plastic trash can, 7-liter (7.4 quart) minimum capacity.

3-3.2.3 Guest Closet. Each guest room/suite will have an adequate closet area. Where ceiling height allows, consider raising closet ceilings to maximize storage volume. Closets must have minimum interior dimensions of 600mm deep x 1050mm wide x 2250mm tall (2'-0" x 3'-6" x 7'-6") with a clothes rod and shelf above providing a total length of hanging space minimum of 1.8m (6'-0"). Provide the clothes rod at 1.4m (4'-6") above the floor for accessible guest rooms and suites. Provide sliding glass mirrored closet doors. Provide adequate blocking for all wall-mounted accessories including an iron and ironing board in the closet.

3-3.2.4 Accessible Guest Rooms

Figure 3-9 Accessible Guest Room Plan



Figure 3-10 Accessible Guest Room Option Plan



Provide a solid surface vanity counter with integral sink and back splash in accessible baths, height and depth as required, with a full-width, full-height, frameless mirror with polished bevel edges all sides above. Insulate the pipes and maximize knee space as per code. Provide an accessible shower with a fold-down bench seat and adjustable height shower head including a hand-held spray attachment in all accessible baths. Provide grab bars as required adjacent to the toilet and shower with walls reinforce to support a 113kg (250lb) minimum pull force. Shower grab bars will be incorporated as an integral component of the shower surround. All grab bars will be powdered coated stainless steel, white, in lieu of standard stainless steel finish.

A 600mm deep (24") coffee bar area including an undercounter refrigerator, coffee maker and microwave oven, may be a built-in design. This counter shall be a solid surface material with a full height back splash, and shall have adequate width to support the microwave oven and the coffee maker. The cabinets above shall be solid plywood construction with hidden hinges, integral routed pulls, raised panel solid wood doors with melamine interior and fixed shelving, stained to match case goods as specified in the Comprehensive Interior Design package.

3-3.2.5 Suites

Figure 3-11 Suite Plan



Figure 3-12 Suite Plan Option

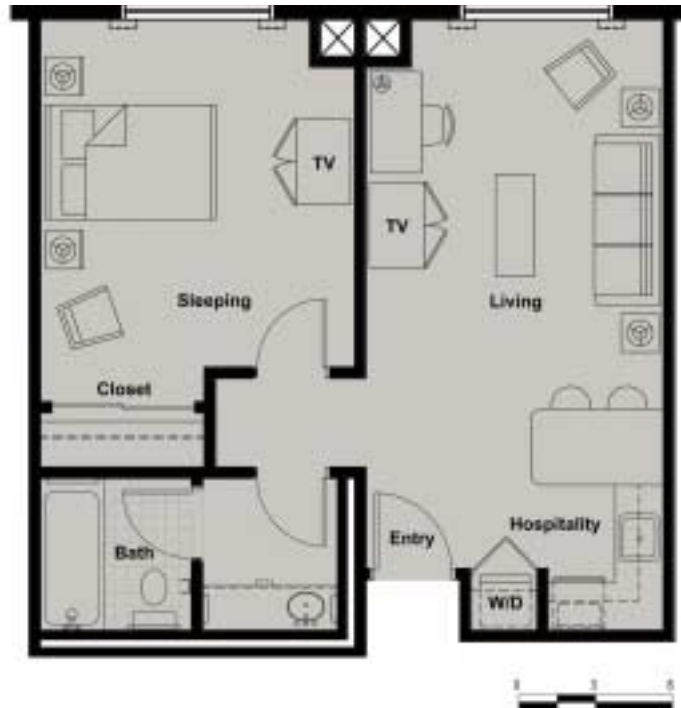


Figure 3-13 Lock-Out Suite Option Plan



Figure 3-14 Suite Hospitality Area—Ramstein Air Base



Figure 3-15 Suite Hospitality Area—Osan Air Base



Suites will include a hospitality area for guests to prepare simple meals and will include a .34m³ (12cf) frost-free undercounter refrigerator with a separate freezer compartment, and a 700-watt microwave oven mounted beneath the upper cabinets above. Provide a stainless steel sink, 18 gage, brushed stainless steel, satin finish, with a gooseneck single-lever faucet. Consider using a "sink and a half" design having one large bowl with a smaller bowl connected to a disposal.

Provide a separate counter with leg room for bar stools and cabinetry beneath on the wall side of the hospitality area. The sink area will have at least 900mm (3'-0") of wall cabinets and 900 mm (3'-0") of base cabinets, with at least 600mm (2'-0") of counter space adjacent to the sink. All cabinets and counters will be plywood construction with hidden hinges, integral routed pulls, raised panel solid wood doors and drawer fronts with melamine interior and fixed shelving, stained to match case goods, underside of wall cabinets to be completely finished with integral fluorescent task lighting. Provide solid surface counters with eased edges; an integral full height backsplash and integral 100mm (4") side splashes. A 600mm deep (24") hospitality area is included in all suites and should match the construction and finishes of the hospitality area. This may be a built-in design and will include upper and lower cabinets and a serving counter.

An enclosed laundry area will be provided in all suites with individual washers/dryers, either stackable or side-by-side, and solid wood cabinets mounted above to match the adjacent cabinetwork. Consider the use of a ventless dryer or ventless washer/dryer combination to eliminate the requirement for a location adjacent to an exterior wall or special exhaust systems. Provide adequate air circulation around units and consider maintenance and potential heat build-up in the selection process. In new construction, the contractor is responsible for providing the connection and the laundry equipment. In renovation projects, provide the connection for the washer/dryer hook-up only. In new construction, the contractor is responsible for providing the connection and the laundry equipment. In renovation projects, provide the connection for the washer/dryer hook-up only.

A 813mm (32") flat screen, high definition, television will be provided in all suites with a separate combination DVD/VCR player. Consider the size of this television when selecting armoire size and function. Ensure that the armoire doors are fully retractable.

3-3.2.6 Accessible Suites

Figure 3-16 Accessible Suite Plan



Figure 3-17 Accessible Suite Option Plan



Figure 3-18 Accessible Suite Option Plan



Accessible suites will generally follow all guest room requirements, but provide allowances for guests with disabilities. Provide a solid surface vanity counter with integral sink and back splash in accessible baths, height and depth as required, with a full-width, full-height, frameless mirror with polished bevel edges all sides above. Insulate the pipes and maximize knee space as per code. Provide an accessible shower with a fold-down bench seat and adjustable height shower head including a hand-held spray attachment in all accessible baths. Provide grab bars as required adjacent to the toilet and shower with walls reinforce to support a 113kg (250lb) minimum pull force. Shower grab bars will be incorporated as an integral component of the shower surround. All grab bars will be powdered coated stainless steel, white, in lieu of standard stainless steel finish.

Hospitality areas in accessible suites will have pull out shelving, open work areas, 864mm (2'-10") high countertops, and other requirements as necessary to comply with accessibility guidance. Provide a rear-drain kitchen sink, 18 gage brushed stainless steel, satin finish, depth to meet code, with a gooseneck single-lever faucet and integral spray hose. Suites will include a hospitality area for guests to prepare simple meals and will include a .34m³ (12cf) frost-free undercounter refrigerator with a separate freezer compartment, and a 700-watt microwave oven to be located on placed on the counter above the refrigerator. A 600mm deep (24") hospitality area is included in all suites and should match the construction and finishes of the hospitality area. This may be a built-in design and will include an upper cabinet and a serving counter.

3-3.3 Guest Support Areas. Guest support areas are critical to the quality level of the guest visit. Specific support activities vary by installation, and are included in Table 2-3 of this guide. Guest support activities for Osan Air Base are shown in Figure 3-14.

Figure 3-19 Conceptual Guest Support Area Plan



3-3.3.1 Entrance/Lobby Area

Figure 3-20 Lobby Area—Osan Air Base



A main lobby area may have adjacencies including administration, secured luggage storage, reception, self-service sales store, business center, concierge station, coffee kiosk, public toilets, and core circulation. The capacity of the lobby is determined through consultation with Headquarters Air Force Services Agency and the installation based on historical experience of the typical number of customers and guests anticipated to use this area. Provide access to persons with disabilities in all public spaces.

Plan acoustics, lighting, and furnishings to create an environment conducive to the intended activity. The lobby must be located so as not to interfere with the conduct of business at the reception desk, but will be adjacent. Consider possible interior and exterior use of the space, including the inclusion of a gas fireplace, exterior hose bibs, and appropriate electrical and communications requirements.

Provide public phones and base DSN phones in alcoves adjacent to main entrances, either located together or in separate locations based on local requirements. DSN phones are required adjacent to main entrances per force protection requirements. Provide drinking fountains adjacent to multi-purpose spaces as required. Coordinate location of thermostat controls in reference to proposed placement of furniture and artwork. Provide a 1016mm (40") wall mounted plasma LCD low profile, high definition, television in lobby areas in lieu of traditional models. The system will include a compatible television tuner and sound amplification system, DVD player, and compatible surge protection system for all electronic equipment. Provide appropriate mounting in walls.

3-3.3.2 Secured Luggage Storage Area. Provide a separate lockable room for luggage storage. This room will be located adjacent to the front desk area or the concierge station and will be used as a convenience for guests required secured luggage storage prior to check-in if arriving early or after checkout if departing the installation late.

3-3.3.3 Reception Area

Figure 3-21 Reception Area—Osan Air Base



The design and layout of the front desk area is critical to the operation of the Visiting Quarters facility. Early in the design phase (30%), the design must be complete for this area, including outlet and jack locations for all communication equipment, and total equipment requirement, to ensure total coordination with electrical and communication requirements. The reception desk function will include a minimum of 3 workstations with at least one workstation fully accessible. Each workstation will include a computer system, cash drawer, storage drawer, and telephone provisions. The height of the

countertop adjacent to each workstation must be raised to a level to screen the top of the workstation monitors from immediate view. Placement of a television in the reception area must be considered in relation to the front desk operation to avoid disruption.

3-3.3.4 Concierge Station. Provide an area for a concierge station as required per installation. This area will be used as a convenience for guests requiring staff assistance on local transportation, dining, and shopping arrangements. This space may also be used for reserve training weekend use to coordinate and organize troop check-in and departure.

3-3.3.5 Retail Sales. Retail sales outlets, when required, will provide convenience items and must not compete with Army & Air Force Exchange stores. At a minimum, the sales area will have a single point of sale checkout including necessary electrical/communication requirements, display shelving, determined by the quantity, variety and type of products sold. Determine the size and quantity of refrigeration equipment; locate the required floor drains, water sources, and utility requirements based on the intended store capability. Arrange the location of the retail sales function away from the reception desk area, but easily accessible to the guests.

3-3.3.6 Business Center

Figure 3-22 Business Center



3 – 4 workstations will be provided within a business center, adjacent to the main lobby area, for use by guests as required. Fax and copy services will be included.

3-3.3.7 Conference Room. A 25-seat conference/training room is required adjacent to the main lobby for use by staff and guests. A 75-seat conference/training room is permissible if required. Requirements include internet/LAN, phone, computer, dry erase capabilities, training video use, and computer training use.

3-3.3.8 Food Service

Figure 3-23 Food Service



A signature brand “Rickenbackers” type coffee shop is permissible in new Visiting Quarters construction, based on local requirements. Similar to chain coffee venues, this area can seat up to 20, and will follow a standardized floor plan. If not required based on demand, a coffee kiosk will be provided in the lobby area of the facility with appropriate utility connections.

3-3.3.9 Fitness Center. A fitness area will be a project specific requirement and will be based on proximity to the base fitness center. A complete fitness center is not required.

3-3.3.10 Laundry. Provide a centralized laundry area or separate accessible laundry areas per floor to support guests while on extended stay. Washer/dryer ratios will be 1 washer/8 guests and 1 dryer/8 guests and will include accessible washers/dryers, seating, folding areas, and service sinks within the laundry areas as required and in conformance with the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines*. Designers must carefully address noise isolation, acoustics, humidity, ventilation, and temperature control. Include a minimum depth 457mm (18") built-in solid surface counter with eased edges for folding laundry adjacent to the laundry area, reinforced to support maximum wear and use. Allow an area for a vending machine to provide laundry detergents and necessary supplies. Provide a stainless steel deep service sink with a gooseneck faucet, located within the laundry area. Provide adequate seating adjacent to laundry area. Other laundry area considerations include concealing all utilities from view, yet providing easy access. Mount utility connections 900mm (36") above the floor. Design straight-run venting of dryers to avoid lint clogs. Provide floor drains for each 6 washers, minimum of 2 drains, in addition to the drain in the wall-mounted box

3-3.3.11 Vending Area. Provide a separate vending area with ice dispensing machine on each floor adjacent to guest rooms. Provide space and utility connections for ice and vending machines, number to be based on individual installation requirements. Icemakers will be sized based on 136kg (300lbs) per 200 guests. Provide a floor drain and dedicated water service for each ice dispensing machine.

3-3.3.12 Administration. Administration areas will be provided in new Visiting Quarters construction and will be sized according to existing staffing requirements. Locate administration areas adjacent to the main lobby area.

3-3.3.13 Communications Room. A communications closet will be provide adjacent to the administrative area to support the Lodging server and associated equipment.

3-3.3.14 Public Toilets. Provide toilet facilities for use by visitors and guests in conformance with the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines*. Provide convenient access to these toilets from the lobby/entrance area. Provide separate men and women toilet facilities where higher use is anticipated. Provide an accessible lavatory and mirror in the accessible stall as possible.

Provide commercial grade toilet accessories in the visitor toilets. These include recessed paper towel dispenser/trash receptacles, toilet tissue holders, soap dispensers, sanitary napkin disposals, sanitary toilet seat cover dispensers, baby changing stations, and required grab bars. When possible, provide baby changing stations in the accessible stalls for privacy with appropriate signage for location. Additionally, provide all-in-one type accessories to reduce space requirements.

3-3.3.15 Corridors. Corridors convey a strong visual statement and will enhance the character of a lodging facility. Designs will provide a transition from the exterior to the interior. Provide guest room access from interior corridors. Provide windows at the ends of interior corridors or at corners and intersections as possible to maximize natural light within the space. Lighting, recessed alcoves, and small dropped soffit areas designed to follow these carpet borders enhance the vertical features and provide balance. Provide easily read, appropriately scaled signage to assist with direction and well-placed artwork to create interest in the lobby and entrance areas.

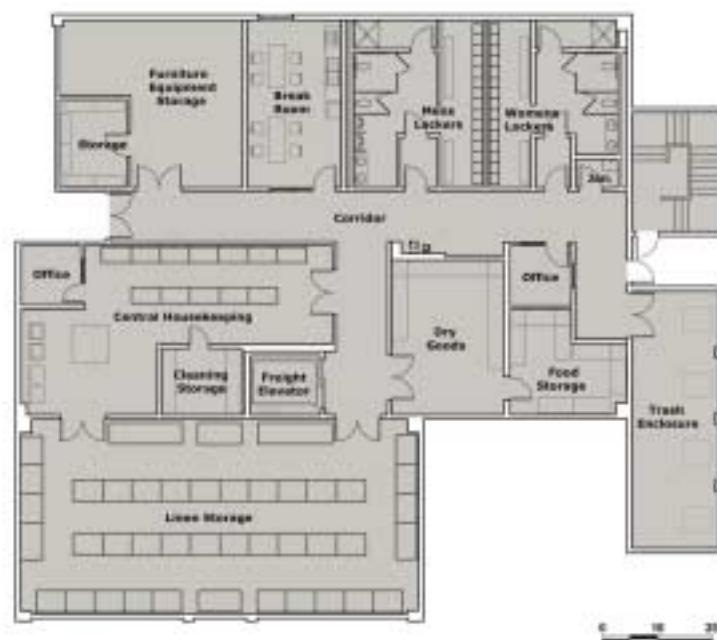
Figure 3-24 Circulation—Osan Air Base



3-3.3.16 Passenger Elevators. Passenger elevators are required for all multistory buildings. Provide a non porous solid surface interior wall finish to provide durability and ease of maintenance. Combination freight and passenger elevators are not desired unless the size of the lodging facility does not merit separate elevators. Specify the elevator based on projected capacity and base standard. Consider a faster, traction type elevator for buildings above five floors, and ensure controls include an auto return to the first floor on all elevators. Size the elevator to accommodate accessibility requirements and emergency stretchers.

3-3.4 Service (Back-of-House)

Figure 3-25 Conceptual Back-of-House Plan



This area supports functions including housekeeping, clean and soiled linen storage, maintenance and delivery operations, employee areas, storage area, outside storage, and supply storage rooms. Additionally, utility spaces are required including mechanical rooms, electrical and telephone closets, sprinkler control rooms and janitor closets. The design of this area will be flexible. Consider the use of large cages in lieu of separate rooms. Avoid service traffic through lobby and guest support areas.

3-3.4.1 Utility Rooms. Locate mechanical rooms to control noise and vibration and allow for efficient utility distribution, generally best located adjacent to laundry facilities. Give special attention to the reduction of noise and vibration transfer. Electrical and communications rooms, as well as sprinkler control rooms, will be located as required throughout the Visiting Quarters for efficient utility distribution. Sized nominally, requirements are site specific, but usually include phone and data. LAN is required in administration areas, but is not provided in individual guest rooms. A secured area for

the main facility server is required, and will be considered in placement of these spaces. Plan access to mechanical, electrical, and communications rooms so that minimal disruption occurs when service is required and access is restricted by guests. Provide access from the exterior of the Visiting Quarters whenever possible.

3-3.4.2 Janitor Areas. Locate a janitor area on each floor and/or wing based on 1 area per 12 guest rooms. Include a deep service elongated rectangular sink, a mop strip, a floor drain, and wall-mounted shelves for storage of cleaning supplies.

3-3.4.3 Cleaning Supply Storage. A supply storage room is required on each floor and/or wing and will be used primarily to replenish containers of green cleaning products. Provide an eye wash station, a deep service elongated rectangular sink, floor drain, and appropriate shelving for each storage room.

3-3.4.4 Housekeeping Office. A housekeeping office will be provided in new Visiting Quarters construction and will be sized according to existing staffing requirements. Locate this office adjacent to the back-of-the-house service functions.

3-3.4.5 Housekeeping Area. Provide one housekeeping area on each floor or wing depending on facility size and configuration as a minimum to include a dishwasher, but not laundry appliances. Staffing levels are based on one housekeeper per 12 guest rooms. Employee lockers will be located within the housekeeping area, double tiered, 300mm x 450mm x 900mm (12"x18"x36"), with molded plastic fronts.

3-3.4.6 Linen Storage

Figure 3-26 Storage



Provide shelving as required for clean linen storage. Shelving will be specified as heavy duty to support heavy linen loads as required. Include an area for housekeeping cart storage. Provide a separate area for sorting soiled linen.

3-3.4.7 General Storage Area. Provide a general storage area to support food storage, dry goods storage and beverage storage as required per lodging project and installation specific requirements. Provide shelving as required and consider the use of large cages in lieu of separate rooms to allow flexibility. Consider an additional storage area for furniture and equipment based on installation specific requirements.

3-3.4.8 Employee Areas. An employee lounge will be provided for each new lodging facility. Provide separate break room for local nationals, apart from non-local nationals, as special overseas break room requirements. Provide a kitchen area to include a dishwasher, range (cooktop and oven), microwave, exhaust hood located on an exterior wall (no recirculating air allowed), and refrigerator with automatic icemaker. A 2-compartment kitchen sink, 18 gage brushed stainless steel, satin finish, depth to meet applicable codes, with a gooseneck single-lever faucet and integral spray hose will be included. Provide solid surface counters with integral full height splashes, and all plywood construction cabinets and counters with hidden hinges, integral routed pulls, raised panel solid oak doors and drawer fronts with melamine interior and fixed shelving, stained to match case goods.

Consider artwork, lighting, tables and seating as required and sized based on staff. Provide blocking in the wall to support a wall-mounted 635mm (25") television. Provide separate staff toilet facilities as required to match same finish and accessibility requirements of the public toilet areas. Consider including shower facilities as possible and based on staffing requirements. Provide staff lockers in the employee areas to support the average historical number of male/female employees.

3-3.4.9 Maintenance Shop. A maintenance shop is required to provide storage for typical maintenance items and to provide a workspace for occasional electrical and carpentry work. Provide shelving and horizontal workspace as required.

3-3.4.10 Receiving Area. A receiving area may be required especially in larger lodging designs. Provide loading dock areas and overhead coil or swinging doors as appropriate for climate.

3-3.4.11 Exterior Storage. An outside storage room is recommended for grounds and building maintenance equipment and supplies, such as lawn mowers, snow removal equipment, garden tools, gasoline, and paint. Determine the types of materials to be stored and design accordingly for the associated fire hazard classification and ventilation requirements.

3-3.4.12 Service Elevators. Service elevators are required for all multistory buildings and will conform to *NAVFAC Elevator Design Manual DM3.09 and ANSI 17.1*. Provide a solid surface interior finish to provide durability and ease of maintenance. Combination freight and passenger elevators are not desired unless the size of the lodging facility does not merit separate elevators. Specify the elevator based on projected capacity and base standard. Size the elevator to accommodate accessibility requirements, furniture moves, housekeeping carts, and emergency stretchers.

3-3-4.13 Attics/Basements. Attic access is required and will be fire protected if determined by applicable code. Storage in attic areas and basement construction will not be provided.

3-3.5 Interior Design Considerations

Figure 3-27 Interior Design—Osan Air Base



The interior design and architectural design of the facility must be integral and related, and in context with characteristics of the built environment of the local region. Architectural compatibility, historical background, and vernacular design are critical in providing a cohesive lodging campus. The interior design also has a direct impact on the quality of life for the guests. Increased attention to the high-tech personal environment that characterizes today's life-styles shall be emphasized (computers, audio-visual equipment, cable television, etc).

Interior design developed for the Air Force requires the services of a professional Interior Designer working in conjunction with the other disciplines to achieve the total design intent for the project. All Visiting Quarters design projects must include a Structural Interior Design and will be provided a Comprehensive Interior Design package for coordination and implementation. Reference the *USAF Interior Design Guide* for further information on interior package requirements. Headquarters Air Force Services Agency is developing various options for lodging interior finishes and furnishings. The base, with Headquarters Air Force Services Agency or Major Command assistance, will make the decision on the scheme appropriate for each project.

The A-E, in coordination with the base, will specify finish materials and colors for the Structural Interior Design to follow the standards established by Headquarters Air Force Services Agency and to blend with the Comprehensive Interior Design packages. The A-E will coordinate with an Interior Designer in the selection process and in the development of the Structural Interior Design and the implementation of the Comprehensive Interior Design. The goal is to reflect the sensitivity of management to the needs of the lodging guest.

Select neutral colors for surfaces that will have a long life, such as ceramic tile, laminates, window blinds, solid surface counters, etc., to facilitate future finish material upgrades. Provide a pleasing color scheme in durable finish materials. Use color in non-permanent finishes to add interest and vitality, but do not allow color to dominate the interior environment. Coordinate materials, finishes, color, and texture selection to complement the overall building design and image. Fabrics used are not required to be the same, but will be color coordinated within each space. Additional recommendations on interior design standards and criteria, is available in the *USAF Interior Design Guide*. Comply with base and Major Command interior standards and guidance.

When selecting interior finishes, consider the recycled content requirements for affirmative procurement of products included in Environmental Protection Agency list of guideline items. Federal agencies must purchase products made with recycled materials unless these products do not meet technical requirements, are more expensive than comparable virgin material products, are not available competitively from two or more sources, or are not available in a timely manner. The items in this list related to interior design include carpet and cushion, latex paint, floor tiles, and shower and restroom dividers. This list changes as Environmental Protection Agency add new items every other year. The complete list of guideline items and their recycled content requirements is found on the *Environmental Protection Agency website*. Additionally, designers are encouraged to work with product manufacturers for other available products.

Table 3-3 Recommended Finish Schedule

Space	Floor	Wall	Ceiling	Level of Use
Guest Rooms				
Guest Rooms	CP	P	P	H
Bath	PT	P, CT, PT	P	H
Entrance	PT	P	P	H
Suites	CP, PT	P	P	L
Guest Support				
Entrance	PT, T	P, WC	P	H
Corridors, Stairs	PT, T	P, WC	P	H
Lobby Area	CP, CPT, PT	P, WC	P	H
Retail Sales	CP, CPT, PT	P	P	H
Business Center	CP, CPT	P	ACT, P	M
Laundry Areas	PT, CT	P	P	H
Vending Areas	PT, CT	P	P	H
Storage Rooms	SC, PT	P	P	H
Toilets	CT, PT	P, CT, PT	P	H
Administration	CP, CPT	P	ACT, P	M
Conference Room	CP, CPT	P, WC	ACT, P	M
Luggage Storage	SC, PT	P	ACT, P	H
Food Service	PT, T	P	P	H
Service (Back-of-House)				
Linen Storage	SC	P	P	H
Utility Areas	SC	P	P	H
Employee's Lounge	CP, CPT, PT	P	P	H
Employee Toilet	CT, PT	P, CT	P	H
Supply Room	SC	P	P	H
Storage Room	SC	P	P	H
Maintenance Shop	SC	P	P	H
Receiving Area	SC	P	P	H
Housekeeping	SC	P	P	H

Legend

Floors	Walls	Level of Use
CP Carpet	CT Ceramic Tile	H High/Extreme
CPT Carpet Tile	P Painted Drywall or Plaster	M Normal/Above Average
CT Ceramic Tile	WC Wall Covering	L Light Use
SC Stained/Sealed Concrete	Ceiling	
PT Porcelain Paver Tile	ACT Suspended Acoustical Tile	
T Terrazzo	P Painted Drywall or Plaster	

3-3.5.1 Interior Materials and Finishes

3-3.5.1.1 Carpet. For the latest guidance on carpet, reference *ETL 03-3, Air Force Carpet Standards*, and the *USAF Interior Design Guide*. Carpet with a small pattern, a tweed or random design is required for its appearance retention and durability. Consider new products with additional wearability and maintenance abilities, and consider recyclable goods.

Guest room areas have a heavy wear classification for carpet. Carpet tile is not acceptable for use in guest rooms. A commercial grade solution dyed level loop carpet with either a factory attached rubber slab cushion or a separate heavy-duty commercial carpet cushion is recommended for these areas. A cut pile/plush may be acceptable for the suites only based on light level of use. Provide a painted or stained wood base in guest rooms and suites.

Public areas have a severe wear classification. A commercial grade solution dyed level loop carpet with a factory attached rubber slab cushion or carpet tile is recommended for these areas. A separate heavy-duty commercial carpet cushion may not be used. Provide a painted wood base in common areas.

Carpet may be used on stairs if a hard surface flooring is not appropriate, but will be severe wear and a texture to prevent slipping when wet or subjected to the elements. Develop carpet "islands" with center pattern designs surrounded by carpet borders running perpendicular to the walls to shorten a long corridor. Consider transitions between carpet and tiled areas. Butt carpet seams as possible in lieu of providing additional transition materials. Provide appropriate thresholds at guest room entrances.

3-3.5.1.2 Hard Surface Flooring. Use tile with sealed or epoxy grout in bath/vanity areas, hospitality areas, laundry areas, vending areas, food service areas, break areas, lobby areas, corridors and stairs. Stone or terrazzo is the preferred flooring in high traffic areas. Ceramic tile and porcelain paver tiles are good alternatives based on location and use. Provide tile base to match flooring. Grout will be sealed immediately following installation and use of epoxy grout will be considered in heavy traffic areas. Grout color will be neutral and medium tone to match color of tile. Avoid white as a predominant color. Vinyl flooring is not acceptable.

Provide an appropriate recessed walk-off flooring material at the main entrance vestibule. Consider recycled rubber tire walk off tiles or other similar products.

3-3.5.1.3 Walls. The use of natural materials such as stone on the interior can provide a durable finish and provide warmth and texture to the space and will be considered as part of the entrance/lobby area design. When walls are painted, a washable, non-glossy product such as an eggshell enamel must be used. Consider the use of the a guide such as the *Master Painter's Institute* assist with the level of sheen desired, while maintaining the performance qualities of an eggshell enamel paint product. Bathrooms, laundry area, vending areas, doors and trim work, and services areas will receive a semi-gloss enamel finish. Consider the use of a Venetian plaster finish in common areas, providing a durable coating, rich in texture and easy to maintain. Accent colors will be used primarily in textiles such as draperies and upholstery fabrics and not in wall colors or materials.

The use of vinyl wallcovering on exterior masonry walls is not recommended. In the case of a renovation, ensure that the wall is properly designed to avoid moisture problems such as mold and mildew. Provide furring strips with a gypsum wallboard finish if CMU construction is used for exterior walls or interior partitions.

Provide transparent, vinyl corner guards on all exposed wall corners of guest room, suites, and common areas, 1200mm (4'-0") high from the top of base, to match the interior design package. All corridors, conference areas, business centers, and administrative areas will have an integral chair rail, mounted appropriately based on use of the space, with matching 150mm (6") high wood baseboards. Provide blocking in walls throughout for all wall mounted accessories, including doorstops, bathroom accessories, accessibility requirements, bulletin boards, cue racks, etc. Recess all wall-mounted accessories other than the light fixtures, such as fire extinguisher cabinets. Interior walls of elevator cabs will be solid surfacing or equivalent in lieu of standard carpet finish.

3-3.5.1.4 Ceilings. All ceilings will be gypsum wallboard painted white with an eggshell enamel paint and a medium sand texture. Lay-in acoustical tile ceiling systems with exposed suspended grid systems will be specified for use in administrative areas, business centers, and conference areas only, as they tend to convey a nonresidential quality and are easily damaged. Avoid heavily textured acoustical treatments, including a sprayed popcorn ceiling application, which is difficult to patch.

Coordinate ceiling treatment with lighting selections. Consider varying ceiling heights and combination task and ambient lighting packages, especially in corridors and large areas, such as lobbies and conference rooms, to create interest. Emphasize natural light as much as possible. Consider the use of painted wood crown molding throughout primary guest supports and in guest suites.

3-3.5.1.5 Doors. Interior guest room and suite entrance doors will be self-closing, solid core wood, decorative face, ½ hour rated in fully sprinkled facilities, conform to accessible standards and minimum 900mm (3'-0") width. These doors will be equipped with one 180-degree one-way viewers (two viewers will be provided in accessible units), permanently- locked doorknobs, deadbolts and electronic keyless swipe card (match base system) locksets. If an electronic locking system does not exist at the base, provide a complete system, including the system at the lodging reception desk. Assure that the statement of work for the locking system software will interface with the Lodging Touch System (LTS). All doors within the facility will operate from this same locking system including doors accessing utility and service functions. Mixed lock types is not acceptable. A mechanical cipher lock for doors into cash rooms/financial areas is the only exception.

Sliding glass mirrored closet doors will be provided in bedrooms, including a header track and floor track mounted directly to the floor, and will be full height for easier access to shelving above rod. Opening hardware for closet doors will be integral with the frame in lieu of separate thin-profile hardware. Do not use hollow core wood doors, bi-fold doors, or pocket doors in lodging construction. Doorstops will be provided for all doors and wall-mounted bumpers provided where possible. Consider width of interior door frames to allow frames to cleanly receive vinyl wallcovering where applicable. Provide wide-angle peepholes and deadbolts on all entrance doors.

All interior door hardware throughout lodging facilities will be lever style. Interior corridor separation doors will be solid core wood, ½ hour rated in fully sprinkled facilities, minimum pair of 900mm (3'-0") doors, minimum 1800mm (6'-0") opening, with magnetic holding devices and glass vision panels, size and construction as permitted by applicable code. Service area doors will be solid core wood with hollow metal frames. Areas required to have vision panels in doors include guest laundry, lounges, retail areas, business centers, administration areas, break rooms, meeting rooms, luggage storage, reservations, and all other public spaces not mentioned. Vision panels will assure guest safety. If possible, provide single hardware assembly for door closure and hold open operation.

3-3.5.1.6 Cabinets and Millwork. Built-in cabinets must be well constructed with sturdy hardware and will meet the requirements of the *Kitchen Cabinet Manufacturer's Association* standards. Particleboard may not be used. Cabinet faces will be solid wood and use a raised panel surface. All casegoods and hardware will be coordinated with the Comprehensive Interior Design package for the project to ensure matching woods, stains, and finishes as best possible. Routed tips will be provided on cabinets in lieu of pulls, with appropriate pulls provided on cabinets in accessible areas. In all cases, concealed hinges will be provided. Finishes must be able to withstand frequent cleaning and must coordinate with the other finish materials. Neutral colors are required for cabinets and millwork to facilitate future color scheme changes. Use a non-porous solid surfacing material for countertops and back splashes based on durability and ease of maintenance. Provide a full height back splash to run from countertop to underside of cabinets above in the hospitality areas of the suites, the food service areas located within the guest supports, and in the break room areas.

3-3.5.1.7 Bathrooms. Use 200mm x 200mm (8"x8") or 300mm x 300mm (12"x12") slip resistant porcelain paver tiles in bathrooms/vanity areas with matching base. Specify a mottled or shaded tile to hide discoloration from detergents, etc. Use non-porous solid surfacing material from floor to ceiling around bathtubs and showers. Grout will be sealed immediately following installation and use of epoxy grout will be considered in heavy traffic areas. Grout color will be neutral and medium tone to match color of tile for ease of maintenance and good appearance retention. Other areas may be covered to wainscot height as possible. Use a non-porous solid surfacing material for countertops and back splashes based on durability and ease of maintenance. Provide blocking in walls throughout for all wall mounted accessories, including doorstops, bathroom accessories and accessibility requirements.

3-3.5.1.8 Window Treatment. Draperies and solar shades will be installed in all Visiting Quarters guest room windows. In addition, solar shades will be used in guest supports and back-of-the house applications. Vertical blinds and horizontal blinds will not be used in lodging facilities. Consider solar conditions with the use of solar shades as applicable and depending on installation location. Consider installing European style rolladens (roll-up shutters) to provide additional privacy, security, and noise and light reduction. Provide solid surface windowsills at all windows.

The drapery lining will hang independently from the finished drapery treatment and will have a blackout liner where required at overseas locations and bases where flight crews require rest during daylight hours. For ease of cleaning, stack-pleated, roll-pleated or accordion-type pleated drapes will be used in lieu of pinch-pleated drapery treatment. Traverse rods will be commercial quality. All window treatments must pass *NFPA 701, Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*. Fabrics for draperies and bedspreads will be inherently flame-retardant, with the only approved exception allowing for the fiberfill content in bedspreads. Bedspreads must complement the window treatments and carpet color, but need not match exactly since bedspreads are laundered more frequently. Provide blocking in walls to support furniture specified in the Comprehensive Interior Design package and to support the installation of sheer and blackout draperies and rods, extending 300mm (12") past each window jamb.

3-3.5.1.9 Furniture Considerations. Coordinate with the Comprehensive Interior Design package during the design process. All furniture is specified and separately funded by Headquarters Air Force Services Agency. All casegoods and hardware will be coordinated with the Structural Interior Design package for the project to ensure matching woods, stains, and finishes as best possible. Furniture arrangement will not block window openings to allow the maximum amount of natural light into the guest room. Consider the placement of the thermostat controls in reference to furniture and artwork locations. Provide blocking for all wall or ceiling mounted equipment and furnishings. Selection of materials and finishes for the main lobby area will consider heavy use.

3-3.5.1.10 Signage, Artwork and Accessories

Figure 3-28 Lobby Area—Osan Air Base



Provide artwork for all public areas. Headquarters Air Force Services Agency will provide an artwork and accessory allowance for each Visiting Quarters project to include common areas and individual guest rooms. Coordinate with the installation, Major Command, and Headquarters Air Force Services Agency, with final approval by Headquarters Air Force Services Agency. Graphics presentation and content must be well designed, coordinated with the architecture and interior design packages, and compatible with the local geographical culture. All artwork shall be hung with security hangers. Silk plants are authorized for common areas.

Interior signage will be in accordance with the installation sign standards, accessibility requirements defined in the *Uniform Federal Accessibility Standards* and the *Americans with Disabilities Act Accessibility Guidelines*, and *UFC 3-120-01, Air Force Sign Standard*. All interior signage will be funded as part of the Visiting Quarters project. Provide clearly visible unit room names and/or numbers all guest supports including main entrance signage and direction signage, service areas, and individual guest rooms and suites. Coordinate directional signage and individual guest room numbering schemes with the local lodging manager and base communications. Consider odd numbers on one side of the hallway and even numbers on the opposite side.

With the exception of emergency pull boxes, all speakers, electrical panel covers and access panel covers exposed to interior rooms, thermostat controls, fire extinguisher cabinets, hose boxes, electrical boxes, plumbing chase covers, etc. will have a factory finish to match the color of surrounding walls or ceiling as specified in the Structural Interior Design package. Standard factory finish colors may not be acceptable.

3-3.5.1.11 Equipment Considerations. The schedule and sizes provided below are based on industry standards and will be used as a design basis. Consider and coordinate the use and location of recycling centers throughout the common areas to compliment the interior design while supporting sustainability guidance.

Table 3-4 Equipment Schedule

Standard Guest Room and Suites		
Equipment	Features/Requirements	Dimensions
Washers/Dryer (GF/CI)	stacking or combination unit, vent kit or ventless, white, suites only	27 ^{-3/8"} x 32 ^{-1/4"} x 72 ^{-3/4"} 695mm x 819mm x 1848mm (ventless unit/combination unit sizes may vary)
Refrigerators (GF/CI)	.34m ³ (12cf) capacity, freezer above refrigerator, auto-defrost for standard guest rooms and suites	28" x 28" x 62 ^{-7/8"} 711mm x 711mm x 1597mm
Microwave Oven (GF/GI)	Countertop freestanding unit, .02m ³ (0.7cf) capacity, 700 watts, glass turntable, child lockout, braille overlays, white	19" x 12 ^{-7/8"} x 11" 483mm x 327mm x 279mm

Accessible Guest Room and Suites		
Equipment	Features/Requirements	Dimensions (note 7)
Washers (GF/CI)	white, extra-large capacity, combination unit, vent kit or ventless, white, .08m ³ (2.7cf), front load, front controls, suites only	26 ^{-3/4"} x 25 ^{-3/4"} x 36" 679mm x 654mm x 914mm (ventless unit/combination unit sizes may vary)
Dryers (GF/CI)	white, extra-large capacity .16m ³ (5.7cf), front load, front controls, vent kit	26 ^{-7/8"} x 25 ^{-3/4"} x 36" 683mm x 654mm x 914mm (ventless unit/combination unit sizes may vary)
Refrigerators (GF/CI)	.34m ³ (12cf) capacity, freezer above refrigerator, auto-defrost for accessible guest rooms and suites	28" x 28" x 62 ^{-7/8"} 711mm x 711mm x 1597mm
Microwave Oven (GF/GI)	Countertop freestanding unit, .02m ³ (0.7cf) capacity, 700 watts, glass turntable, child lockout, braille overlays, white	19" x 12 ^{-7/8"} x 11" 483mm x 327mm x 279mm

Services Area		
Equipment	Features/Requirements	Dimensions (note 7)
Refridgerator (CF/CI)—Employee Lounge	.5m ³ (18cf) capacity, freezer above refrigerator, reversible doors, icemaker, water filter	28" x 28" x 62- ⁷ / ₈ " 711mm x 711mm x 1597mm
Disposal (CF/CI)—Employee Lounge	Continuous feed operation, ½ HP motor, stainless steel swivel impellers, stainless steel sink flange, overload protector with manual reset, plug/cord accessory	6- ⁵ / ₁₆ " dia x 11- ³ / ₈ " 160mm dia x 289mm
Microwave Oven—Employee Lounge (GF/GI)	Countertop freestanding unit, .02m ³ (0.7cf) capacity, 700 watts, glass turntable, child lockout, braille overlays, white	19" x 12- ⁷ / ₈ " x 11" 483mm x 327mm x 279mm
Laundry Detergent Vending (GF/CI)	Varies	
Ice Dispensing Machine (GF/CI)	Varies	
Employee Lockers	Varies	

- The construction contractor or design-build contractor is responsible for buying/ordering, receiving, handling, storage, and installation of all CF/CI items as required. Provide separate costs for all CF/CI items.
- All appliances will be white.
- The construction contractor or design/build contractor will submit cut/data sheets of proposed equivalents/substitutions appliances for review/approval.
- Dimensions are W x D x H.
- The construction contractor or design-build contractor will provide wood blocking in walls (drapery rods, wall hung furnishings, closet rods, kitchen/bath cabinetry, etc, as required for installation of GF/GI listed items).
- Purchase appliances meeting Energy Star program standards and specifications as included in this guide. Qualifying products are listed on the *Energy Star website*.

3-4 BUILDING SYSTEMS

3-4.1 Structural. Select an economical structural system based on force protection requirements, facility size, projected load requirements, subsoil conditions, local availability of materials and labor, feasibility of prefabrication, local construction practices, and resistance to fire, and wind, snow, seismic, geologic, and permafrost conditions. Decisions concerning the structural system have substantial impact on construction costs. Coordinate column spacing and layout with the floor plan to ensure column placement within or in alignment with walls. Minimize columns awkwardly placed within guest rooms or living areas, and limit placement to larger public spaces.

Force Protection requirements applicable to the structural design of lodging facilities include those found in *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*. These standards requires the design of the structural support system to minimize progressive collapse, attaching all interior ceiling, electrical, and mechanical components to the building structure, and using annealed laminated glass on windows and doors.

Analyze the proposed structural system to determine if it is the “best value” method to realize the architectural design intent. Larger projects such as a new Visiting Quarters campus design or fast track design-build projects will consider new alternative construction methods and materials. Based on the required expertise needed to apply new construction methods, these systems are not recommended for smaller lodging projects.

Roof systems and supporting structure will consider life cycle costs as well as long-term durability and ease of maintenance. Concrete tile roofing systems and metal roofing systems are recommended for typical lodging construction. Reference the *International Building Code* for design load criteria.

3-4.2 Acoustics. Careful attention to acoustic design is essential for lodging facilities to ensure a high degree of privacy for guests within their rooms and study areas. Walls between guest rooms, between guest rooms and living areas, between guest rooms and corridors, between guest rooms on a floor level above or below, exterior walls of guest rooms, mechanical rooms and systems, elevators and stairs, service areas, employee areas, laundry and vending areas, supply areas, and externally-generated sound such as aircraft and automobile noise must have a Sound Transmission Class (STC) of 55. Floor and ceiling assemblies must have an Sound Transmission Class of at least 55 and an Impact Insulation Class of at least 60. Telephone, cable television, convenience outlets, and mechanical ducts must not compromise the acoustical integrity of wall, floor, or ceiling assemblies. Where fluorescent lamps are used, specify fluorescent lamp ballasts with a sound level rating ‘A’. The high noise levels generated by jet aircraft, as well as normal acoustical concerns, must be addressed early in the design stage. Proper acoustical design depends on a careful ratio of reflective to absorbent surfaces so that excessive reverberation and disturbing sound intensity levels can be eliminated. The type of space and functions will determine the adequate sound control.

3-4.3 Mechanical Systems. Mechanical and utility systems will comply with the *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*: locate air intakes on roofs or above first story, and restrict access to intakes; control access to facility roofs; install emergency shutoff switches for HVAC systems; avoid positioning redundant utilities in the same location or chase; and provide secured access to all supporting facilities and infrastructure systems. Coordinate location of dryer, kitchen, and bath exhaust vents on exterior of the Visiting Quarters facility and away from windows. Exposed ductwork, conduit, etc., is not allowed.

3-4.3.1 System Design. The design of the HVAC system must comply with the criteria set forth in *MIL-HDBK-1190, Facility Planning and Design Guide (Sept. 1987), Chapter 10, Air Conditioning, Dehumidification, Evaporative Cooling, Heating, Mechanical Ventilation, and Refrigeration*. The following is provided in addition to, and in cases of conflict takes precedence over, the above guidance. In humid areas special design and construction considerations are required. These considerations are not limited to HVAC systems. Humid area criteria is defined in *ETL 03-2, Design Criteria for Prevention of Mold and Mildew in Air Force Facilities in Humid Climates*.

3-4.3.2 System Selection. The selection of the HVAC system is to be based upon the lowest total life cycle costs: include initial costs, operating costs, energy costs, system maintenance and repair costs, and component replacement costs, if not expected to achieve the same life cycle of the systems under considerations. The HVAC system must be designed to ensure that building energy consumption does not exceed Department of Defense energy budget figures. Use of a central plant will be considered for Visiting Quarters campuses. A central plant with heating and cooling equipment reduces maintenance and capitalizes on the higher efficiency of larger capacity commercial equipment. Ground-mounted and through-the-wall AC systems may also be considered, as appropriate.

Consider the use of renewable energy technologies as part of the selection of the HVAC system or as a supplemental energy source. Reference *ETL 94-4 Energy Usage Criteria for Facilities in the Military Construction Program* for further guidance. The use of ground source heat pumps is encouraged if economically feasible. If used, soil reports prepared during the design process will include borings to the depth necessary to consider the use of a ground source heat pump. Benefits include energy conservation and reduced maintenance. Consider the requirement and/or selection of DDC controls or other types of EMCS systems with base personnel.

Supply air will be ducted to the sleeping rooms. Branch ducts will be equipped with balancing dampers. Avoid placing ductwork over tub area, and ceiling space will not be used as return air plenums. Considerate ductwork locations utilizing soffit areas in closets. Evaluate need for transfer/return air sound attenuation between the guest rooms and adjacent areas.

HVAC systems will be standardized with electronic thermostat regulating temperature controls. Individual climate control must be provided and located within each guest room, and within the bedroom in the case of suites. Coordinate location of thermostats with location of furniture and artwork.

3-4.3.3 Maintenance. Maintainability of the system is critical to the continued quality of life of the occupants. Access to the systems must minimize disruption to the occupants and maximize servicing efficiency. The mechanical systems must comply with *ETL 01-1, Reliability and Maintainability (R&M) Design Checklist*. HVAC units will be located within the mechanical closet/space to ensure that filters, controls, drain pans, and condensate piping, control valves and coils are easily accessible for servicing and

cleaning. Condensate piping will be equipped with traps and threaded clean outs at the unit. Design drawings must detail these features including minimum clearances for maintenance and required force protection setback distances as outlines in *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*. In the selection of chilled water systems, the design of HVAC enclosures must take into account the space needed for chillers to receive air to cool condenser coils and room for service. Enclosure design will also consider screening that will prevent large amounts of pollen and vegetation from clogging condenser coils, enclosure placement on the site, and compatibility with surrounding architecture and exterior design elements.

3-4.3.4 Ventilation. Provide a central ventilation system to supply conditioned outside air to each room or suite HVAC unit. Equip all branch ducts with accessible volume control dampers. Each guest room will be supplied continuously with conditioned outside air to meet the current *ASHRAE Standard 62* or as required for building pressurization, whichever is larger. If provided to each room's HVAC unit, the room's HVAC unit's fan must run continuously.

3-4.3.5 Bathroom Exhaust. Bathrooms may be equipped with a central exhaust system or individual, directly vented, and switched exhaust fans. System selection will be based upon a life cycle cost analysis. If a central ducted bath exhaust system is utilized, the exhaust system will run continuously and be interlocked with the building supply air system, include a manual volume damper accessible from the space for proper balancing, and include an evaluation for utilizing heat recovery from the exhaust system to precondition ventilation air. Consider alternative systems that balance cost, maintainability and control.

3-4.3.6 Room HVAC Systems. When guest rooms are equipped with individual HVAC systems, these systems will be ducted vertical fan units placed within designated mechanical closets or mechanical rooms equipped with lockable doors. Through-the-wall units and units located in the ceiling space are discouraged for maintenance reasons. Individual HVAC systems will not be used as the primary HVAC system to condition outside air in humid climates and must be carefully designed or avoided in humid areas to avoid mold and mildew.

3-4.3.7 Piping System. Where centralized hot and chilled water utilized, individual HVAC systems will be connected to a centralized mechanical system by a 4-pipe hot water and chilled water distribution system to provide positive space control.

3-4.3.8 Perimeter Fin Tube Heating. In areas such as overseas or as applicable per local code where perimeter fin tube heating is utilized, provide temperature control for each zone.

3-4.3.9 Laundry Areas. Dryer venting must be well designed, especially with the inclusion of laundry units per module, to prevent lint clogs and significant maintenance issues. Design straight-run venting of dryers to avoid lint clogs. Dryer venting must be exhausted away from windows and exterior balcony areas.

3-4.4 Plumbing. Reference the *Uniform Plumbing Code* for plumbing requirements. Provide domestic hot and cold water, sanitary and storm drainage, propane or natural gas, steam or hot water, and/or chilled water as required. Reference section 3-1.6.8 for landscape irrigation requirements. Provide metering for water per building and as per Air Force requirements

Provide hot and cold water to all public toilets, bathrooms, sinks, janitor closets, drinking fountains and laundry rooms. Provide floor drains in all toilets, bathrooms, janitor closets, and laundry rooms. Provide shut-off valves at all fixtures. Tank type, low water volume toilets are required in all bathrooms. Provide elongated bowl toilets with a closed-front seat and a lid. Toilets and bath fixtures must match and be neutral in color. All bathroom plumbing fixtures exposed (pipes, faucets, etc.) must be first-line chrome-plated brass, manufactured by nationally known manufacturers. All tubs and lavatories must have pop-up type waste stoppers. Rubber stoppers are not permitted. Tub/shower valves must be pressure balanced anti-scald type. Locate faucet, showerhead and controls on interior wall to allow for placement of plumbing access panel. Provide filtered water lines for break area refrigerators with automatic icemakers

In public toilets, provide sensor-activated faucets, toilets and urinals. Drinking fountains will be located on each floor of public areas of each lodging facility, and will meet accessibility requirements and Uniform Plumbing Code requirements for number, size and height. Hose bibbs will be provided on all exterior walls of each building at 30.5m (100'-0") intervals; freeze proof as dictated by climatic conditions.

Plumbing systems will be designed to take advantage of stacking bathrooms and common wet walls for efficiency. Mechanical engineers, architects and structural engineers must work together to carefully plan the size and location of plumbing chases with minimal impact on usable living space. Consider collocating plumbing chases with exhaust risers serving each guest room. Exposed plumbing pipes are not permitted. The procedures described in the most current edition of the Uniform Plumbing Code will be used in determining water supply and waste line sizes.

3-4.4.1 Hot Water Systems. Central hot water domestic systems (gas if possible) will be specified for all projects to reduce costs and provide better service for guests. The Uniform Plumbing Code will be used in determining the size of the hot water generator, and based on requirements, size will allow showering in individual guest rooms, with ten-minute recovery, as per applicable codes. Individual water heaters in each guest room will be considered only for very small projects where the number of units does not warrant a central mechanical room. Provide separate water heating system for centralized laundry rooms. Individual water heating systems are permissible in suites for individual washer/dryers.

The domestic hot water system must have a circulating pump or other approved system installed in-line to provide instant hot water at tap. Provide protection from hot water surges. In the design of central hot water systems, verify that the draw-off requirements for the domestic hot water service will be determined in accordance with the method recommended in the Uniform Plumbing Code. The minimum requirements are to allow for simultaneous use of 100% of the showers discharging (maintaining a pressure of 15psi at the showerhead). Hot water will be stored and circulated at a temperature greater than 60°C (140°F) but less than 65°C (149°F). Minimum hot water storage will be sized to maintain flow under 100% shower discharge for a five-minute period (capacity will vary based on number of rooms). The heat exchangers within the calorifiers will be capable of raising the contents from 10°C (50°F) to 65°C (149°F) in one hour. The temperature of the hot water as it leaves the hot water storage calorifier will be 60°C (140°F).

3.4.5 Energy Performance. Sustainable energy efficient performance in lodging facilities cannot be achieved solely by individual building systems, but must be supplemented by other design factors as well. Reference *ETL 94-4 Energy Usage Criteria for Facilities in the Military Construction Program* for further guidance. Design factors such as mechanical systems and management controls selection, thermal insulation characteristics, building orientation, solar shading, landscape, electrical system design, occupancy sensor devices, and appliance selection will be considered.

There are many other factors designers must consider, but they will keep in mind the importance of life cycle cost analysis for lodging facilities. The Air Force keeps its facilities for a longer period of time than most buildings in the private sector. Therefore, considerable attention will be given to energy-efficient design in the initial planning process. Efficient energy management policies require consideration of whole building design that relies on renewable energy sources. Recent federal policy requires the use of Energy Star and other energy efficient products when acquiring energy-using products. Reference the *Energy Star website* for additional guidance. When Energy Star labeled products are not available, select products in the upper 25% efficiency.

3.4.6 Electrical/Communications. The electrical design of a Visiting Quarters project will be based on maximum guest room hotel occupancy. The design will include electrical distribution equipment, data fax ports, intrusion detection systems, cable television, fire detection and enunciation, emergency lighting, interior and exterior lighting, receptacles and grounding, and electric, telephone, and local area network wiring. Provide individual circuits per room. Provide surge protection on service entrances, distribution panels, sub panels, selected feeders, and sensitive load circuits. Provide metering for electric power per building and as per Air Force requirements.

Based on recent force protection criteria found in *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*, a Mass Notification system is required in all facilities and will be included in project funding. This requirement will be integrated into the lodging facility communication system. Coordinate with base security forces personnel for guidance and additional requirements. Speakers will be 100mm (4") diameter, recessed, and factory finished to match color of wall or ceiling as specified in the Structural Interior Design package.

The following standards apply to the planning, design, and construction phase of new Visiting Quarters construction and renovation to existing facilities and systems. These standards will also serve as a checklist for reviewing drawings and specifications for electrical design of Visiting Quarters projects. Floor plans must show the location of all electrical equipment, items, devices, controls, and loads. Construction drawings must include one lines for all electrical equipment (transformers, switching gear, panels, loads, etc) including schedules for all panels, circuits, and loads. Consideration to daily operation and maintenance will be emphasized. This list will not be considered complete or all-inclusive, but rather a starting place. Improved concepts and additions will be added as well as "lessons learned." Cross-exchange of new, improved, more efficient data is encouraged to increase the electrical group knowledge and processes as well as to further minimize life-cycle costs for lodging facilities. Ensure that 110v, 60hz duplex outlets are provided in rooms in overseas locations, in addition to any differing local standard (i.e., such as the 220/230v, 50hz European standard).

3-4.6.1 Lighting

3-4.6.1.1 General Considerations

Figure 3-29 Lighting—Osan Air Base



Lodging facilities have historically suffered from poor lighting levels, thus designers shall provide a much higher quality light source, light level and fixture selection to enhance new Visiting Quarters spaces and their use. The designer must be cognizant of lighting for both day and night situations, and will emphasize the use of natural light

in combination with incandescent or fluorescent lamps to provide a comfortable lighting level. Consider the use of a certified lighting consult, and, and provide the highest quality illumination within budget and life cycle cost limitations.

Coordinate lighting selections with ceiling treatments and consider combinations of recessed lighting, light coves, indirect lighting and soffit lighting as alternatives. Coordinate ductwork and lighting locations to use soffit areas as possible. Provide blocking in walls throughout for all wall mounted accessories including wall mounted lighting fixtures. Limit the types of lamps necessary to simplify inventory. Halogen lamps and compact fluorescent lighting are good alternatives over traditional lighting systems based on long term energy efficiencies, improved luminance, and long lamp life spans. Halogen lamps blend well with traditional incandescent lamps and produce a residential warmth to a space. Compact fluorescent fixtures can retrofit standard fixtures and provide a long lamp life. These advantages balance higher initial costs, and will be considered for new Visiting Quarters construction. Specify interior lighting that meets Energy Star program standards. Qualifying products are listed on the *Energy Star website*. Consider solar-powered exterior luminaires when they meet lighting requirements and are cost effective.

Use the latest edition of the *National Electrical Code*, the *IES Lighting Handbook*, and *NFPA 101 Life Safety Code* for lighting calculations, or host nation code as applicable.

The minimum requirements for each respective area will be as follows:

- Provide one fixture (538 lux (50fc) each) on each side of beds
- Provide overall ambient lighting in addition to task lighting—ambient light level at desk height must average 1076 lux (100fc) in each guest room
- Provide a minimum of 538 lux (50fc) at the surface of the table/desk and counter within the suites
- Provide a minimum of 323 lux (30fc) at the dresser area
- Electrical cords must not exceed 1.83m (6 feet)
- Minimum lighting in the bathroom area will be 215 lux (20fc) measured at the floor line of the tub/toilet and 538 lux (50fc) measured at the surface of the vanity

3.4.6.1.2 Specific Requirements

3.4.6.1.2.1 Guest Support/Service Areas

- Provide recessed lighting with dimmer switches as a primary lighting source throughout—additionally consider specific locations that will illuminate and enhance elevator entrances, directories, artwork, and other items of interest
- Consider wall washers if corridors are narrow, visually pushing the wall outward

- Sconces may be used in public areas and corridors, and may be used adjacent to guest room entrances to illuminate room numbers
- Provide occupancy sensor lighting controls for reception areas, administration areas, employee lounge and bath areas, linen and storage areas, and supply areas
- Limit surface mounted ceiling lights and fluorescent tube lighting to utility areas such as mechanical rooms and closets
- Provide exterior lighting of parking areas, building entrances, and walkways

3.4.6.1.2.2 Guest Rooms and Suites

- Provide overall ambient and task lighting in each guest room and suite. Incandescent fixtures with dimmer switches are recommended for the living/bedroom area. Consider recessed down lights and indirect lighting. Fixtures must not appear “institutional”. Do not rely solely on table lamps or ceiling fan light kits for adequate ambient lighting. Provide control to the table lamps in the living room by an individual wall switch located adjacent to the guest room entrance door. Wall sconces will not be used in guest rooms and suites. Consider the use of occupancy sensor lighting controls devices in the guest room and bath areas as appropriate.
- Provide recessed lighting or pendant lighting over suite counter areas, recessed lighting over guest room desk areas, and recessed lighting as general path lighting through rooms including entrances, washer/dryer areas in suites, and halls. Provide ceiling hugger ceiling fans with integral low profile light kits in living and bedroom areas, located in the center of ceilings. Fans and lights will be on individual rheostats to control speed and lighting levels. Location of sprinkler heads and down lights such that neither is located within 300mm (12') of the sweep of the fan blades.
- Backlit wide toggle light switches will be provided for guest rooms, bedrooms, and bathrooms to serve as night-lights. This requirement is made for safety reasons to aid people who are likely unfamiliar with the room layout. Provide an automatic light switch integral to the operation of the closet doors.
- Provide recessed ambient lighting for the bath area, and provide a either recessed directional task lighting or wall mounted light fixtures at the vanity area, balanced above the counter and adjacent to the mirror.
- Provide an independently switched ceiling mounted exhaust fan to the exterior in the guest bath, a radiant heat light fixture with a 15 – 20 minute timer switch in the guest bath, and a surface mounted wet location light fixture centered above the tub area in baths or sufficient ambient light in the bath to provide proper illumination within the tub area—locate all switches together within the bath area.

3-4.6.2 Power

3-4.6.2.1 General Considerations. Provide flexibility in furniture placement with locations of outlets and switching, and locate outlets as required to service appliances including disposals, washer/dryer, refrigerator, under cabinet lighting, televisions, clock radios, coffee makers, and microwaves. All electrical outlets, cable outlets, phone outlets, and light switches will be mounted per applicable code. Through-the-wall duplex electrical outlets between guest rooms and suites will not be used. Provide convenience outlets each 7.6m (25'-0") on center in interior corridors. All exterior outlets will be waterproofed and ground fault interruption (GFI) protected.

Locate electrical panels in a discreet, safe location. Panels will not be located within individual guest rooms. Provide utility access doors as required. Provide access panels to all interior utility connections discreetly to minimize maintenance workers having to cut or otherwise deface finish surfaces. Conceal all wiring; exposed wire mold or conduit will not be used.

3-4.6.2.2 Specific Requirements

3-4.6.2.2.1 Guest Rooms and Suites

- In all bedroom areas, provide 2 duplex outlets on the head wall of the bedroom, 2 duplex outlets on the dresser wall adjacent to the television cable outlet, and 2 duplex outlets on the window wall, mounting height per code.
- In living areas of all suites, provide a minimum of 2 duplex outlets on sofa wall, 1 duplex outlet at the window, 2 duplex outlets adjacent to the television cable outlet, and 1 quadraplex outlet at the counter mounted above standard desk height of 736mm (29")
- Provide duplex convenience outlets (GFI) both sides of mirror in all bath areas, as per applicable code, and to satisfy guest requirements with a minimum of 4 locations. Size circuits to accommodate 1600-watt hair dryers, etc. Overseas locations may not allow outlets in the bathrooms and will be confirmed during design.
- Provide a ceiling mounted exhaust fan on a timed switch with a range of 1 – 10 minutes in all bath areas—coordinate location of switch.

3-4.6.3 Power Supply. Design the power supply to provide 99 percent load availability. Consider dual power supply for each facility, from separate substations, if possible, to increase availability/reliability for these loads. At CONUS and other appropriate locations, provide standard 60 hertz frequency for all possible loads. At overseas locations, comply with local code requirements and provide 220v/230v duplex power outlets, in addition to 110v. Electric or gas is acceptable for appliances based on local requirements. Allow for 230v, 208v and gas dryer connections.

3-4.6.4 Communications

3-4.6.4.1 General Requirements. Design and install telecommunications distribution and cabling systems in accordance with *ETL 01-12, Communications and Information System Criteria for Air Force Facilities*, prewiring in accordance with *AFI 33-133, Joint Technical Architecture—Air Force (JTA-AF)*, and recommendations contained in the *JTA-AF Fixed Base Technical Architecture*, Vol. 6, Building 1040 Wiring Architecture (contact *HQ AFCEA* for specific design criteria.) Systems will be designed and installed only by qualified telecommunications personnel. Provide RJ-11 telephone jacks wired in accordance with *TIA/EIA 570 Residential Communications Standard* with CAT 5 cable and as authorized in *AFI 33-111, Telephone Systems Management*.

Consider the installation of cable modem infrastructure. All designs will consider latest technology available, but actual requirements will vary per location. Due to wide variances, this guide will only suggest the installation of conduit for future communication systems. The use of cable trays is encouraged. Provide cable outlets in accordance with *AFI 64-101, Cable Television Systems on Air Force Bases*.

Provide outlets for phones and access to the installation LAN for both network computers and printers in the administration, reception area, and conference room only, in accordance with *AFI 33-111, Telephone Management Systems* and *AFI 33-115, Vol. I, Network Management*. Locate outlets adjacent to electrical outlets in a manner that maximizes the flexibility of furniture placement. Locate telephone jacks or provide additional jacks for maximum flexibility. Locate adjacent to electrical receptacles. Allow for easy, future upgrades to data and communications cables and allow for fiber optic cables for communications

3-4.6.4.2 Specific Requirements

3-4.6.4.2.1 Guest Support/Service Areas

- Install wall mounted house telephones and public pay telephones adjacent to lobby areas as required per installation. House telephones will connect to the front desk only. Provide a recessed and less visually prominent location
- Provide a cable connection in the break room for a wall mounted television adjacent to a duplex outlet location

3-4.6.4.2.2 Guest Rooms and Suites

- In all standard guest rooms, provide RJ-11 telephone jacks with CAT 5 cable—Two RJ-11 jacks in a single outlet (one labeled “phone” and the other “data port”) on the dresser wall adjacent to the quadruplex electrical receptacle and cable television outlet, and two RJ-11 jacks in a single outlet as above on the wall adjacent to the bed and electrical receptacle. The location of a duplex outlet and cable TV outlet will allow for the installation and mounting of a television either from a wall or ceiling bracket.
- In all suites, provide RJ-11 telephone jacks with CAT 5 cable in the living area—two RJ-11 jacks in a single outlet (one labeled “phone” and the

other “data port”) at the counter adjacent to the quadruplex electrical receptacle, two RJ-11 jacks in a single outlet as above on the sofa wall adjacent to the electrical receptacle. Additionally, provide RJ-11 telephone jacks as specified above for standard guest rooms in all bedroom areas. Provide an additional cable television outlet adjacent to a duplex outlet within the living area.

3-4.7 Corrosion Protection. Conformance with Air Force and NACE standards for corrosion control on all Air Force lodging projects is required. This includes material selection—non-metal or no dissimilar metals, cathodic protection for all underground metal systems, protective coatings for above ground structures and underground metal, and industrial water treatment. Include corrosion protection for electrical components in humid/salt air environments. Consider nitrogen purge or refrigeration type dehumidification protection systems depending on size and capacity.

3-4.8 Fire Protection. In accordance with *UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*, fire protection systems for lodging facilities must include seismic detailing. Fire protection systems must conform to *MIL-HDBK-1008, Fire Protection for Facilities Engineering, Design and Construction*, and to *National Fire Protection Association* fire codes.

3-4.8.1 Fire Resistance. Facilities will be of Type II, noncombustible construction as defined by the *International Building Code (IBC)*. Requirements for the fire resistance of walls, ceiling and floor assemblies will be in accordance with the IBC. In addition, minimum fire separation between egress paths, hazard areas, and exits will comply with the *Life Safety Code, NFPA 101*. Construction of such assemblies must be closely coordinated with the sound attenuating techniques used. Exits such as stair enclosures will be separated by not less than 1-hour fire resistive construction. Hazard areas including boiler and fuel fired heater rooms, bulk laundries, and self service laundries greater than 9.3m² (100sf), maintenance shops and trash collection rooms will be separated by not less than 1-hour fire resistive construction. Note there is no minimum fire separation between modules or within modules in a fully sprinkled facility.

3-4.8.2 Fire Suppression. All new Visiting Quarters and major lodging renovation projects must be protected throughout by an approved supervised automatic sprinkler system installed in accordance with the requirements specified in *NFPA 13, Installation of Sprinkler Systems, or 13R, Sprinkler Systems in Residential Occupancies Up To and Including Four Stories in Height*, as appropriate and other fire codes referenced therein. Sprinkler water supplies for systems designed in accordance with NFPA 13 will comply with *MIL-HDBK-1008, Fire Protection for Facilities Engineering, Design and Construction*. Ensure adequate space is included in the mechanical room for the sprinkler riser or, if no mechanical room is in the project, a sprinkler riser closet with adequate space to service the riser. Fire sprinkler heads will be recessed as standard design, with an exposed head with protective cage acceptable in utility or service locations.

Provisions for life safety must conform to the requirements found in the latest edition of *NFPA 101, Life Safety Code*. Travel distance to exits is of particular concern in designing Visiting Quarters. The placement of stair towers or stairwells must be part of the preliminary building planning process. Minimizing the number of stairs required can be achieved by maximizing allowable travel distance in the design. This requires determining the maximum number of guest rooms that can be served by one stair while still conforming to the maximum allowable travel distance. The elimination of stairs must be tempered with the need for privacy.

3-4.8.3 Fire Detection. Fire detection/internal alarm and reporting system will conform to the latest edition of *NFPA 72 National Fire Alarm Code*. Each sleeping room and living room will be provided with an approved single station smoke/heat detector powered from the building electrical system. Smoke detectors will not be located in a direct airflow or closer than 1m (3'-0") from an air supply diffuser or return air opening. Where ceiling fans are installed, smoke detectors will be at least 1m (3'-0") from the tip of the ceiling fan blade, and the maximum area of coverage for a smoke detector will be reduced by 50%. Provide manual fire alarm pull stations on exterior of building adjacent to each unit as required by local fire code

All guest rooms will be clearly identified on an addressable panel, based on local requirements. Discreetly locate the fire alarm system annunciator panel while allowing easy access in emergencies. Ensure that audible notification devices are easily heard within the guest rooms, and allow all devices within each bedroom and living area to sound concurrently. This may require additional, louder, or individual (in each room) notification devices because of the sound attenuating construction found in lodging. NFPA 72 requires audible fire alarms to be 70 dBA measured at the pillow level. Fire alarm notification devices used within guest rooms will be the "private mode" type.

Provide a Class I standpipe system in stairwell enclosures of lodging facilities 4 stories or greater in height in accordance with *NFPA 14, Installation of Standpipe, Private Hydrants and Hose Systems*. Standpipes consist of a 63mm (2.5") outlet at the first floor and one 63mm (2.5") outlet to be located at each intermediate landing between floors to prevent congestion at doorways. Where there are multiple intermediate landings between floors, hose connections will be located at the landing approximately midway between floors. These outlets must have American National Fire Hose Connection Screw Threads (NH), also sometimes known by the abbreviations NST and NS. Used concealed sprinkler heads throughout.

Ensure all accessible rooms or common areas include the installation of a visual alarm system and notification devices following accessibility guidance.

CHAPTER 4

RESOURCES AND LINKS

This chapter provides a list of references, including other Air Force, Department of Defense and national standards documents that give related guidance, to be used in conjunction this design guide.

GOVERNMENT PUBLICATIONS:

1. Department of the Air Force

AFI 10-245, Air Force Antiterrorism Standards

(<http://afpubs.hq.af.mil/pubfiles/af/31/afi31-210/afi31-210.pdf>)

AFI 32-1022 Planning and Programming of Non appropriated Fund
Facility Construction Projects

(<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1022/afi32-1022.pdf>)

AFI 32-1023 Design and Construction Standards and Execution of Facility
Construction Projects

(<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1023/afi32-1023.pdf>)

AFI 32-1032 Planning and Programming Real Property Maintenance Projects
Using Appropriated Funds

(<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-1032/afi32-1032.pdf>)

AFH 32-1084 Standard Facility Requirements

(<http://afpubs.hq.af.mil/pubfiles/af/32/afh32-1084/afh32-1084.pdf>)

AFI 32-7062 Air Force Comprehensive Planning

(<http://afpubs.hq.af.mil/pubfiles/af/32/afi32-7062/afi32-7062.pdf>)

AFI 33-111, Telephone Systems Management

(<http://afpubs.hq.af.mil/pubfiles/af/33/afi33-111/afi33-111.pdf>)

AFI 33-133, Joint Technical Architecture—Air Force (JTA-AF)

(<http://afpubs.hq.af.mil/pubfiles/af/33/afi33-133/afi33-133.pdf>)

AFI 34-105 Programming for Non appropriated Fund Facility Requirements

(<http://afpubs.hq.af.mil/pubfiles/af/34/afi34-105/afi34-105.pdf>)

AFI 34-246 Air Force Lodging Program

(<http://afpubs.hq.af.mil/pubfiles/af/34/afi34-246/afi34-246.pdf>)

AFI 64-101, Cable Television Systems on Air Force Bases

(<http://afpubs.hq.af.mil/pubfiles/af/64/afi64-101/afi64-101.pdf>)

AFI 65-106 Appropriated Fund Support of Morale, Welfare and Recreation and Non appropriated Fund Instrumentalities

(<http://afpubs.hq.af.mil/pubfiles/af/65/afi65-106/afi65-106.pdf>)

AFPAM 32-1010 Land Use Planning

(<http://afpubs.hq.af.mil/pubfiles/af/32/afpam32-1010/afpam32-1010.pdf>)

ETL 94-4, Energy Use Criteria for Facilities in the Military Construction Program

(<http://www.afcesa.af.mil/Publications/ETLs/ETL%2094-4.pdf>)

ETL 03-3, Air Force Carpet Standards

(<http://www.afcesa.af.mil/Publications/ETLs/ETL%2003-3.pdf>)

ETL 01-1, Reliability and Maintainability (R&M) Design Checklist

(<http://www.ccb.org/html/home/html>) (supercedes ETL 88-4)

ETL 01-12, Communications and Information System Criteria for Air Force Facilities

(<http://www.afcesa.af.mil/Publications/ETLs/default.html>)

ETL 02-12, Communications and Information System Criteria for Air Force Facilities

(<http://www.afcesa.af.mil/Publications/ETLs/ETL%2002-12.pdf>)

ETL 03-2, Design Criteria for Prevention of Mold and Mildew in Air Force Facilities in Humid Climates

(<http://www.afcesa.af.mil/Publications/ETLs/ETL%2003-2.pdf>)

USAF Project Managers' Guide for Design and Construction

(<http://www.afcee.brooks.af.mil/dc/products/pmguide/pmguide.asp>)

USAF Landscape Design Guide

(<http://www.afcee.brooks.af.mil/dc/dcd/land/ldg/index.html>)

USAF Master Landscape Construction Specifications

(<http://www.afcee.brooks.af.mil/dc/dcd/land/mstrland/mlcs.htm>)

USAF Sustainable Facilities Guide

(<http://www.afcee.brooks.af.mil/dc/products/dcproducts.asp>)

USAF Force Protection Design Guide

<http://www.afcee.brooks.af.mil/dc/dcd/arch/force.pdf>

USAF Interior Design Guides

(<http://afcee.brooks.af.mil/dc/dcd/interior/intdespu.htm>)

HQ AFCEE Accessibility Page

(<http://www.afcee.brooks.af.mil/dc/dcd/afada/afada.htm>)

JTA-AF Fixed Base Technical Architecture, Vol. 6, Building 1040 Wiring Architecture

(contact HQ AFCESA, (<http://www.afcesa.af.mil/Directorate/CES/default.html>))

TIA/EIA 570 Residential Communications Standard with CAT 5 cable

(contact HQ AFCESA, <http://www.afcesa.af.mil/Directorate/CES/default.html>)

2. Department of the Navy

NAVFAC Elevator Design Manual DM3.09 and ANSI 17.1

3. Department of Defense

Uniform Federal Accessibility Standards (UFAS)

(<http://www.access-board.gov>)

UFC 1-200-01, Design: General Building Requirements

UFC 3-120-01, Air Force Sign Standard

UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings

(http://65.204.17.188/report/doc_ufc.html)

UFC 4-010-10, DoD Minimum Standoff Distances for Buildings (FOUO)

DoD Military Handbook 1008C—Fire Protection for Facilities Engineering
Design and Construction

(<http://www.ccb.org/html/home/html>)

(To be superseded by UFC 3-600-01, Fire Protection for Facilities
Engineering, Design and Construction)

DoD MIL-HDBK-1190 Facility Planning and Design Guide

(<http://www.ccb.org/html/home/html>)

4. Government

Americans with Disabilities Act Accessibility Guidelines (ADAAG)

(<http://www.access-board.gov/adaag/html/adaag.htm>)

EPA website

(<http://www.epa.gov/cpg/products>)

Energy Star website

(<http://www.energystar.gov/products>)

NON-GOVERNMENT PUBLICATIONS

1. Kitchen Cabinet Manufacturer's Association (KCMA) standards
(<http://www.kcma.org>)
2. International Building Code (IBC)
3. Master Painter's Institute (MPI)
(<http://www.paintinfo.com/mpi/approved/sheen.html>)
4. National Fire Protection Association (NFPA)
(<http://www.nfpa.org>)
5. Illuminating Engineering Society North America (IESNA)
(<http://www.iesna.org>)
6. Uniform Plumbing Code (UPC)
7. American Society of Heating, Refrigerating and Air Conditioning Engineers
Fundamentals Handbook (ASHRAE)
(<http://www.ashrae.org>)